

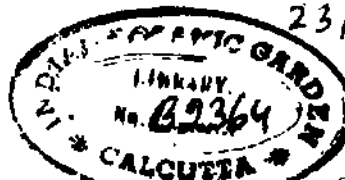
No. 22G., dated Royal Botanical Garden, Calcutta, the 5th June 1877.
From—GEORGE KING, ESQ., M.B., Superintendent, Royal Botanical Garden, Calcutta,
To—The Secretary to the Government of Bengal.

I HAVE the honor to submit herewith the Nineteenth Annual Report of the
Royal Botanical Garden.

ANNUAL REPORT OF THE ROYAL BOTANICAL GARDEN, CALCUTTA,
FOR THE YEAR 1876-77.

1. *General Condition of the Garden.*—The progress of the garden during the year has been, on the whole, satisfactory. The growth of the out-door collection was favoured by a comparatively mild hot and by an unusually showery cold season, while little damage was done by storms of wind. The success of the plants in the large conservatory built in 1874, in the recently-instituted succulent plant-house, and of the groups of avenues planted out during the years 1874 and 1875, is especially noteworthy. The improvements in the laying out of the garden which were begun in 1874 have, as far as the funds at my disposal would admit, been continued during the year. These have now so far advanced that the condition of the part of the garden lying nearest to Howrah leaves little to be desired; much, however, still remains to be done in the palmetum, while the eastern part of the grounds (more especially in the vicinity of the great banyan-tree) is still very unsightly.

2. *Improvements effected during the year.*—The two plant-houses which I reported last year as dilapidated and useless have been pulled down, and instead of putting anything on their sites (which were but ill adapted for buildings,) a large new plant-house has been erected at another spot. This house is built in the place of the large conservatory erected in 1874, and which has been proved so successful. Unlike the latter, this new house is built entirely of iron and masonry, the only wood-work in it being the doors and door-posts. This house was also designed by Mr. Parsons, the Curator of the Garden, on whose skill and good taste it reflects great credit. The new house stands on a raised platform of earth about two feet high; in shape it is cruciform, consisting of a nave with two large semi-circular transepts. Its greatest length is 168 feet and its greatest breadth 108 feet, the roof along the central ridge of the nave and transepts being sixteen feet from the ground. The roof and sides are enclosed by galvanized iron wire netting. It is intended to cover the sides by a pretty scandent fig, while the roof will be formed of a thin thatch of dried grass tied in bunches to the wire netting. A roof of this kind admits a gentle broken light, and, without excluding, modifies the force of the rain. Experience has already proved that a structure of the kind just described is by far the best adapted for the growth of tropical and other plants which cannot without protection withstand the peculiarities of the climate of Calcutta, including, as that climate does, a cold season with chilly damp nights, during which the temperature on the grass sometimes falls low enough to cause hoar frost; a hot season with burning unclouded skies, strong steady drying breezes, with a thermometer standing at about 100° Fahr. in the shade; and a rainy season with an atmosphere calm, steamy, and stifling, the latter being the only thoroughly tropical part of the year. Except during the height of the cold season, glass for a conservatory is found to be worse than useless, while a solid roof or solid walls are equally fatal to plants, although for different reasons. The kind of structure just described (if its area be large enough) is found to secure during the hot weather an efficient protection against the direct rays of the sun, and during the cold weather an equally effective protection against loss of heat by radiation at night. An equable day and night air temperature is thus obtained during both these trying seasons; moreover, the temperature of the soil is kept comparatively steady. It is interesting to observe how well such conditions appear to suit plants naturally inhabiting the most varied climates. In the conservatory built in 1874, the visitor may see growing side by side in perfect health *Marantas* from damp, shady spots in the forests of the Amazon Valley, *Crotom* from the South Sea Islands, and ferns from elevations of 5,000 feet in the Himalayas. But to secure success the area must be large, for it is found impossible to prevent the atmosphere of small houses from becoming assimilated, both in respect of humidity and temperature, to that of the surrounding open air. It is intended in the new house to put out as far as practicable all the plants in open soil, experience having shown how infinitely better plants thrive when so treated than when cultivated in pots. In addition to the usual difficulties of pot culture in all parts of the world, there is added, in India, the impossibility of securing judicious watering, left as this operation must often be to unintelligent labourers. Most pot-plants in India have to struggle



against excessive over-watering in the morning or evening (or at both times) alternated with severe grilling from the direct action of the sun's rays on the sides of the pots by day. Against over-watering a plant in a pot has no protection. But if planted out on a well-drained rocky, the evil of deluging is obviated by the free escape of the excess water, and a cultivator is thus made to some extent independent of his labourers. Another essential point in the construction of a successful conservatory on the plains of Bengal is to put it on slightly elevated ground (a platform two or three feet high is sufficient), and to choose an open site free from the drip and shade of trees. These precautions secure good ventilation and prevent plants damping off.

The two tanks near the conservatories have been thrown into one, and the result is a fine piece of ornamental water. The road emerging from the date-palm avenue has been diverted so as to run between this piece of water and the new plant-house and to join the road leading to the Howrah gate. The removal of the two old plant-houses already alluded to afforded an opportunity, which I willingly embraced, of opening out the lawns about the flower-garden, so as to give pretty views of distant parts of the grounds, and of securing roomy gravel spaces and wide roads; and the result is that the appearance of the central part of the garden is very much improved. To complete the reform in this neighbourhood, two old-fashioned plant-houses, one of which was lately converted into a visitor's house, still block the way. Instead of spending any money in giving these the repairs which will soon become necessary, I would strongly urge their entire removal and replacement by a single more suitable house in a better situation. To improve and complete the landscape effect of the north end of the flower-garden a mound of earth has been thrown up. This will be an excellent situation for an effective group of palms or other ornamental trees.

Soon after taking charge of this garden, six years ago, the opinion began to be forced upon me that the scheme of planting out the garden on a formal systematic arrangement was a mistake. According to this scheme each individual plant stood in a very small plot of cultivated land, the intervening spaces being occupied by grass. Even had the trees and shrubs so planted thriven well, the result would have been a successful plantation, but not a garden. Landscape effects are impossible where trees stand at regular intervals. But, as a fact, this kind of planting is a failure; for few species of plants, however robust their nature, are found to be able to contend successfully with the deep-rooting coarse grass which has taken such thorough possession of the soil since the cyclones of 1864 and 1867, and the result has been that many large patches of ground are filled with dwarfed lichen-covered bushes, which have increased but little in size since the day they were planted. Two years ago I began to take some of these patches in hand, and, digging out the best of these dwarfed plants, to replant them in groups in large well-trenched beds, which I intend to keep in a high state of cultivation. During the year which has just ended this particular work has, from want of funds, progressed but little. The parts of the garden which still require treatment of this sort are shown in the accompanying map, on which they are coloured green. The parts coloured are moreover, very low and swampy, and no measure for their better cultivation will be complete which does not include raising their level; but this can easily be done at a small cost by digging a few tanks and spreading on the remaining surface the soil thus obtained. The improvement of these parts of the garden in the way indicated shall be steadily kept in view; but without a special grant of money for the purpose, it must progress slowly. Were this once finished, the main reforms suggested by me to Government three years ago would be complete, with the exception of the repairs to roads presently to be mentioned.

3. *Roads and Buildings.*—The new roads made during the year have already been referred to. Some of the older roads (and especially that running from the river entrance through the mahogany avenue, past the great banyan-tree, and Roxburgh's monument to the flower-garden) are sadly in need of being widened and repaired, and, in many places, of having their level raised a few inches. The sum required for this would not be very great (probably about Rs. 2,500); but I do not see how it is possible to meet the charge from the ordinary budget allotment of the garden. The older buildings are in fair order and answer their purposes fairly well, with the exception of the small and leaky house in which accommodation has to be found for the herbarium, library, office, and stock of seeds. This house is now quite insufficient for its purpose. An addition to it was sanctioned by Government eighteen months ago, but the building of that addition had ultimately to be postponed in consequence of the existing necessity for economy in all departments.

4. *Garden Collector.*—For the concluding few months of the year a European collector was engaged in exploring the country near Moulmein. His efforts promise to give interesting results; but prior to the termination of the year his collections had only begun to arrive.

5. *India-rubber.*—A wardian case of seedlings of the Para rubber-tree of the America (*Setea Braaiienn**) was sent out from Kew, by Dr. Hooker, under the care of Mr. Duthie, the newly-appointed Superintendent of the Botanical Garden at Seharumpore. These seedlings, thanks to Mr. Duthie's feod management, reached me in excellent health. Calcutta and Sikkim* having proved alike unsuitable for this species, a third number of plants was sent to Mr. Mann, of the Assam Forest Department, in the month of June. Sixteen plants were sent to Major Beaten, Conservator of Forests, at V. B. A. Z.

hope that in the moist equable climate of the southern parts of that country a suitable home may be found for this valuable tree. The remaining plants have been retained here for artificial propagation, in which, I trust, the experience we have gained of the habits and requirements of the species may enable us to be successful.

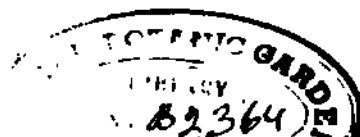
6. *Vanilla*.—Last year I reported that a number of vanilla plants had been put out under the shade of mango-trees, in the hope that in such a situation they might thrive better than in the thatched sheds under which vanilla has hitherto been grown in Bengal. I regret to say that these plants afford just as little hope of a profitable crop as any I have seen. By far our finest plant of vanilla grows on the north side of an old wall. This bore, as usual, a good crop of pods, and, as usual, dropped them unripe on the occurrence of an especially hot day. I am more than ever confirmed in my opinion that the establishment of vanilla culture as a profitable industry in Bengal is not hopeful.

7. *Ipecacuanha*.—During the year, plants have been distributed to Ceylon, Singapore, Burmah, and the Andamans. The peculiarly slow growth of this plant tends to prevent the cultivation of it from being taken up with spirit by European planters, who, not being colonists but merely temporary settlers in the east, naturally look with little favour on crops that yield slow returns. The insignificant straggling appearance of the plant is, besides, little calculated to excite enthusiasm, or even interest, among the planting community. These facts make it still more a matter for regret that the profitable cultivation of ipecacuanha as a crop at the cinchona plantation seems so hopeless, owing, as I have stated in former reports, to the cold of the winter season, even in the warmest valleys, being too great for a species so thoroughly tropical.

8. *Bamboo as a paper fibre*.—In my last report I referred to the sanguine expectation of an English paper-maker that in the young shoots of bamboo he had found a raw material which, by a simple treatment in this country, could be transmitted in a rough dry state to England, there to be manufactured into paper. It is essential to the success of Mr. Routledge's process that the bamboo shoots be quite young and succulent, and the great difficulty which at once presented itself to persons with any knowledge of the mode of growth of Indian bamboos was that such shoots, though produced in moderate quantity from each clump and only during a limited season of the year, the proposed paper-stock-making machinery must, for a large part of the year, necessarily lie idle. To meet this difficulty Mr. Routledge suggested that bamboo clumps might, by proper treatment, be induced, after most of their old shoots had been cut away, to send up from the stools thus bared, regularly and irrespective of season, crops of succulent shoots suitable for conversion into paper-stock. Mr. Routledge's expectations implied a very complete change of habit in the bamboo; for it is pretty well known that bamboo clumps, if entirely cut down, yield for several years but few and small succulent shoots, and, in fact, not unfrequently die. In order, however, to submit the proposed scheme to a trial under my own eye, six clumps of bamboo were cut down last year at the beginning of the rains (*i.e.* between 10th and 20th June), when the buds of the young shoots of the season had completely formed, and were nearly ready to burst through the soil. Soon after the cutting of the old stems these buds developed into shoots which grew with characteristic rapidity. These were allowed to grow until they began to show symptoms of becoming hard, and on 21st July they were all cut down. They were at once weighed with the following result:—

				Number of	Weight
				<i>CSL</i>	in
					pounds.
Clump No. 1	...	...	...	11	166
Ditto 2	...	...	...	7	102
Ditto 3	...	...	...	6	78
Ditto 4	...	...	...	9	100
Ditto 5	...	...	...	5	42
Ditto 6	...	...	...	12	192*
Total				50	680

This gives an average of 113 pounds of wet young shoots per clump. The time of cutting was the most favourable that could have been chosen, and the crop of shoots yielded was probably as good as it would have been had the clumps remained untouched by the knife. Judging from the size of the clumps, I calculate that at most 80 similar clumps could be grown on an acre of ground. This allows an area of 576 superficial feet to each clump, and such close planting would probably necessitate manuring. Taking the yield of these six clumps as an average, and excluding all loss from death and accident, the yield on an acre during the first year of cutting would therefore be 9,066 pounds of fresh young shoots. It must not be forgotten that freshly-cut bamboo shoots are extremely succulent, and that the amount of dry paper-stock that could be got from them would bear a very small proportion to their original weight. An additional difficulty that attends the scheme is that, since only fresh succulent shoots will answer, and these are of too high specific gravity to float, the cost of land carriage to the factory (a very heavy one in Bengal) would have to be incurred. The cut clumps above mentioned were well cared for; leaf mould and tank soil were laid round them, and, as compared to similar clumps in



the forest, they had the great advantage of immunity from fire and from being grazed on by cattle. Since their young shoots were cut, a considerable number of thin woody twigs have arisen from the bases of the old stems. No fresh young root shoots have however appeared. Some such will doubtless appear at the usual time, which would be the beginning of the ensuing rainy season. These shoots shall be cut at the time recommended by Mr. Eoutledge, *i.e.* when they are just beginning to become hard and woody, and with the cutting of these the crucial part of the experiment will begin. The results shall be duly recorded in next annual report.

9. *Baobab*.—The young plantation of baobab which, at the suggestion of Dr. Hooker, Director of the Kew Garden, was made two years ago, is progressing; but it is too young yet to afford any data as to the possibility of cultivating baobab for a paper fibre with good financial results. My own opinion is that a plant yielding an annual crop of fibre is, for economical reasons, more likely to answer than one from which a crop can be collected only at distant intervals. Among the numerous Gramineae and herbaceous Urticaceae and Malvaceae abounding in the reserves under the charge of the Forest Department, there must be some which would yield, in sufficient quantity and at a low enough cost, a fibre suitable for paper. This matter is, I think, well worthy the attention of Forest offices in all parts of India. Several of the wiry grasses so abundant on the sea-coast might also possibly furnish as good a fibre as the now practically exterminated esparto of Spain and Algeria.

10. *Interchange of living plants and seeds*.—This has gone on actively during the year, as the appended lists will show. The total number of seed packets distributed amounts to 7,053, while, on the other hand, 3,270 packets have been received. Of living plants 24,027 have been issued and 12,246 have been received. To the undersigned gentlemen the garden is specially beholden for donations of plants and seeds: His Highness Prince Eama Varma, of Travancore; Dr. Hooker, C.B., F.R.S., of the Royal Garden, Kew; Dr. Thwaites, F.R.S., Ceylon; Messrs. Haage and Schmidt, Erfurt; Messrs. Gilbert and Hardinge, Eangoon; Sir William Macarthur, Sydney; Mr. Franklin, Pomoong; Major Mant, N.E., and Dr. Egel, St. Petersburg. The garden is also highly indebted to Messrs. Apcar and Company, of Calcutta, as well as to the agents for the Peninsular and Oriental and British India Steam Navigation Company, for the extremely liberal manner in which they have allowed boxes of plants for the garden to be conveyed free of all charge.

11. *Herbarium*.—Additions to the herbarium during the year consist of a collection (amounting to about 300 species) received from Baron Von Midler, Melbourne; of 1,724 species from Gay's Herbarium received from Dr. Hooker, Kew; of 270 species of Chinese plants from Dr. Hance, H. M.'s Consul at Hankow, and of small collections from Mr. Nix, Minnesota, United States, and from Mr. A. J. Green, New Zealand. Dr. John Anderson, of the Imperial Museum, also made over to the herbarium a number of plants acquired during the life-time of his late brother, formerly Superintendent of this garden. These have all been incorporated in the general collection. Besides these, I have received the collections made by Mr. Lister last year in the Chittagong Hill Tracts, and by Mr. Gallatby during the early part of the present year near Moulemein; also a number of plants collected in Sikkim under the supervision of Mr. Biermann, Mr. Parsons, and myself. The latter have not as yet been incorporated in the collection.

12. *Library*.—Some books, indented for in previous years from the India Office, were received during the past year. The delay that occurs before receiving anything indented for through this source continues as great and as perplexing as ever.

13. My acknowledgments are due to the curators of the herbarium and of the garden, to the second gardener and to the botanical collector for their services. The office establishment and garden overseer also deserve commendation.

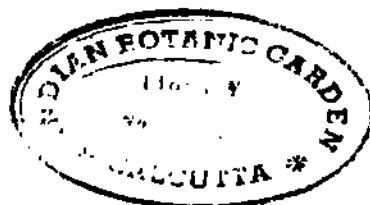
14. The usual returns are sent as appendices.

GEORGE KING,
Superintendent, Royal Botanical Garden.

APPENDIX I.

Plants received at the Royal Botanical Garden from 1st April 1876 to 31st March 1877.

FROM.	Wardian cases.	Boxes.	Number of plants.
Royal Botanical Garden, Kew	2	.....	101
" " Ceylon	1	.....	42
Botanical Garden, Singapore	.....	1	24
" " Mauritius	1	.....	79
" " Java	2	.....	78
" " atal	2	1	100
" " Ootacamund	1	.....	99
" " Saharunpore	.....	14	158
" " Brisbane, Australia	.....	1	19
Government Garden, Hong-Kong	2	.....	38
Eden Garden, Calcutta	.....	.....	67
Barrack pore Park	.....	.....	114
Alfred Park, Allahabad	.....	6	100
Agri-Horticultural Society of India	.....	.....	356
" " " Rangoon	.....	2	232
" " " Madras	.....	3	97
Acclimatization Society, Queensland	1	1	130
Messrs. Haage and Schmidt, Seedsmen, Nurserymen, Erfurt, Prussia	.....	1	94
W. Franklin, Esq., Pomoong ...	.....	6	645
Major Mant, Darjeeling	.....	2	245
J. Gammie, Esq.	.....	4	399
W. Freeman, Esq.	.....	27	1,569
D. L. Barr, Esq.	.....	.....	35
C. F. Nepean, Esq.	.....	.....	8
Major Berkeley, Madras	.....	1	65
R. Knight, Esq.	.....	.....	33
J. S. Gamble, Esq., Darjeeling	.....	2	72
Dr. T. Beaumont, Indore	.....	.....	7
Baboo P. C. Sein	.....	.....	109
Peppe, Esq., Raneehi	.....	.....	9
Baboo N. C. DOBS	.....	.....	16
A. C. Lyall, Esq., Ajmeer	.....	1	45
J. H. Gilbert, Esq., Han goon ...	.....	2	81
Colonel Boddara, Bangalore	.....	1	10
Dr. G. Watt, Hooghly	.....	.....	22
R. M. Daly, Esq.	.....	.....	41
W. Pinheiro, Esq., Cawnpore	.....	.....	159
The Chief Commissioner, British Barmah	.....	1	228
Captain Henderson	.....	.....	12
G. Bartlett, Esq.,	.....	.....	8
J. Hamilton, Esq.	.....	.....	11
C. B. Garret, Esq., o.s., Dacca	.....	3	95
G. Peche, Esq., Moulmein	.....	2	29
The Deputy Conservator of Forests, British Barmah...	.....	1	8
J. E. O'Connor, Esq.	.....	.....	30
W. M. Bourke, Esq.	1	.....	20
Sir William Mac Arthur, Sydney	2	.....	40
H. R. Riely, Esq., Maldah ...	.....	.....	14
Dr. D. D. Cunningham, Calcutta	.....	.....	234
H. R. Cooke, Esq.	.....	1	31
Dr. J. G. Pilchor	.....	1	17
A. T. Jatfray, Esq.	.....	2	51
Dr. Bonavia, Lucknow	.....	.....	20
C. H. Pillans, Esq.	1	.....	121
General Raban, Shillong	.....	.....	507
His Highness the First Prince of Travancore	1	.....	14
H. T. Prinsep, Esq., Hooghly	.....	.....	14
Captain Badgley, Shillong ...	.....	.....	314
J. T. Jarbo, Esq., Chittagong	.....	2	31
Dr. J. Armstrong, Moulmein...	.....	2	166
Mrs. Colquhoun-Grant, Kidderpore	1	.....	7
Moonshi Mallee	.....	.....	80
Collected in Sikhim by the Superintendent	.....	12	872
" " " Curator	.....	18	597
" " " and Chittagong by the Botanical Collector	.....	28	2,081
Collected in British Barmah by the Assistant Gardener	.....	11	1,098
Total	18	161	12,246



APPENDIX II.

Plants despatched from April 1876 to March 1877.

To	Wardian cases.	Boxes.	Number of plants.
H. R. H. the Prince of Wales	1	220	
His Excellency the Viceroy, Government House, Calcutta	300		
His Honor the Lieutenant-Governor of Bengal	123		
Sir Joseph Fayrer, London	1	192	
Royal Botanical Garden, Kew	4	333	
" " Ceylon	2	235	
Botanical Garden, Saharanpore	10	117	
" " Hong-Kong	2	147	
" " Java	2	94	
" " Cape Town	1	42	
" " Sydney, Australia	1	40	
" " Singapore	1	106	
Mauritius Government	4	5,000	
Government Farm, Cawnpore	1	116	
Zoological Garden, Calcutta	3,159		
Barrackpore Park	212		
Wingfield Park, Lucknow	312		
Eden Garden, Calcutta	350		
Khoosroo Bugh, Allahabad	2	24	
Chief Commissioner of British Burmah	1	251	
General Hospital, Calcutta	1	24	
Wm. Bull, Esq., Chelsea, London	1	106	
St. Xavier's College, Calcutta	82		
Presidency College, Calcutta	285		
Commissariat Depot, Hastings	142		
A. Weekes, Esq., Furruckpore	650		
Mission Chapel, H. Fings	50		
Garrison Hospital, Calcutta	24		
Lunatic Asylum, Calcutta	24		
Midnapore Jail	4	100	
Howrah Municipality	1,075		
Central Prison, Benares	8	160	
Manbhoom Jail Garden	2	134	
Wards' Institute, Calcutta	55		
Calcutta Municipality	591		
St. Thomas' School, Howrah	230		
Conservator of Forests, Soonderbuns	200		
Assistant Magistrate, Baraset	175		
Public Garden, Allahabad	36		
Major Money, Durbhunga	4	152	
Kishnagbur College	138		
Agri-Horti. Society, Rangoon	3	265	
" " Madras	2	244	
" " Lucknow	6	328	
" " Calcutta	1,311		
D. L. Barr, Esq.	14		
Baboo B. Hossein	26		
Captain E. Baring, C.S.I.	1	36	
Colonel Earle, c. 8.1.	1	26	
Baboo R. N. Mullick	123		
R. Knight, Esq.	55		
C. Bedford, Esq.	29		
Baboo N. N. Mullick	36		
J. Hardy, Esq.	1	24	
H. T. Handford, Esq.	15		
J. H. Peppe, Esq., Ranchi	2	46	
Wade, Esq.	12		
Messrs. Fitz and Co., Calcutta	2	37	
J. Driscoll, Esq.	11		
Dr. O. C. Raye, Presidency General Hospital	17		
J. H. Gilbert, Esq., Rangoon	1	16	
H. R. Cooke, Esq.	26		
Messrs. Stanley, Price and Co.	11		
A. T. Jaffray, Esq.	3	30	
J. Bashford, Esq.	17		
J. W. Edgar, Esq., O.B.L., Darjeeling	1	17	
Col. Boddam, Madras	1	42	
G. Mann, Esq., Assam	2	35	
Earl of Kinnoull, Dnnpplin Castle, Scotland	1	47	
Baboo N. N. Mookerjee	12		
" " N. C. Dass	22		
Major S. Berkeley, Madras	2	75	
Baboo M. P. Dass	1	17	
" " H. M. Mookerjee	28		
R. M. Daly, Esq.	68		
T. R. Doucett, Esq.	13		
Dr. Shircore	18		
A. Apar, Esq.	9		

APPENDIX II.-(Continued.)

To	Wardian cases.	Boxes.	Number of plants.
Captain Lamb, Ordnance Department			61
German Club, Calcutta			11
C. T. Metcalfe, Esq., o.s.l., Patna		7	200
Baboo D. N. Nuskur			9
" D. C. Roy			4
C. T. Buckland, Esq., C.s.			16
Baboo D. N. Seal			15
H. Kallmyer, Esq.			12
T. J. C. Grant, Esq., c. 8., Howrah			23
J. S. Gamble, Esq., Darjeeling		1	25
His Highness the First Prince of Travancore			50
J. L. Mackay, Esq.		2	82
R. B. Magor, Esq.			90
Davis, Esq.			14
Baboo K. M. Seal			29
Mrs. G. C. Grant, Kidderpore			110
T. Beatson, Esq.			15
J. Thomson, Esq.		2	66
Rani Hora Soondery Dabi, Raneeunge			22
H. H. Nawab Abdool Ghunny, o. s. l., Dacca		14	327
C. B. Garrett, Esq., o. s., Dacca		3	159
Dr. D. D. Cunningham, Calcutta			27
Wells, Esq.			100
Dr. T. Beaumont, Indore			32
J. Macnamara, Esq.		7	590
Baboo R. C. Dutt			17
J. Hamilton, Esq.			37
G. Bartlett, Esq.			38
J. E. O'Connor, Esq.			251
H. T. Prinsep, Esq., C.s., Hooghly			8
Arjun Moolah			78
J. Jarbo, Esq., Chittagong			48
Hon'ble C. R. Lindsay, Lahore		1	12
Messrs. Ashburner & Co.		1	60
T. Green way, Esq.			31
Sir William Mc Arthur, Sydney, New South Wales		2	186
Dr. J. Fullerton Beatson, Calcutta			20
Rev. O. It. Batchelor, M. D.			27
The Chaplain of Vizianagram			12
J. Beames, Esq., Cuttack			25
Captain C. A. Carthew			105
W. Bourke, Esq., Bengal Club			9
S. T. Apcar, Esq.			18
The Hon'ble Sir E. C. Bayley		1	69
Charles Macnamara, Esq.		1	69
Nawab Hajee Murdun Ali Khan, Mooradabad		3	48
H. B. Powell, Esq., Lahore		3	23
H. Cockerell, Esq.			12
Captain Badgley, Shillong		4	72
J. Calvert, Esq.		2	39
Baboo B. C. Bose, Cutwa		2	190
" R. B. Sanyal			13
G. T. Jones, Esq.			42
R. D. Urquhart, Esq.			192
T. A. Apcar, Esq.			8
T. Palmer, Esq.			30
R. B. Smyth, Esq.			148
Dr. S. C. Mackenzie			50
Utterparah School		1	70
Dr. Armstrong			6
E. J. Barton, Esq.			90
D. McCorkindale, Esq.			14
J. Wyman, Esq.			60
E. Barton, Esq., Backergunge			198
R. Ross, Esq.			50
Mr. E. Gray, Assam		1	16
H. R. Riely, Esq., Maldah		12	200
Baboo N. G. Dass			22
Miscellaneous distribution			265
Total	22	160	24,027

APPENDIX III.

Statement showing seeds received from 1st April 1876 to 31st March 1877.

From whom received.	Number of parcels or packets.
Dr. Regei, Imperial Garden, St. Petersburg, Russia	948
Botanical Garden, Java	18
" " Graaf Reinets, South Africa	27
" " Adelaide, South Australia	85
" " Edinburgh	72
" " Sydney, Australia	63
" " Melbourne, Australia	3
" " Hong-Kong	3
" " Mauritius	4
" " Ceylon	663
" " Saharunpore	175
" " Gunesh Khund, Poona	1
Queensland Acclimatization Society, Queensland, Australia	58
Botanical Garden, Ootacamund	33
Government Model Farm, Cawnpore	5
" " Central Museum, Madras	1
Wingfield Park, Lucknow	4
Conservator of Forests, British Burmah	30
" " of " Madras	5
" " of " North-Western Provinces	1
Assistant Conservator of Forests, Kumaon Division, Xvnee Tal	1
Deputy Conservator of Forests, Tinnivelly, Palamco^P Madras	87
" " of " Nilambore	1
Sub-Assistant Conservator of Forests, Palamow	15
Assistant Conservator of Forests, Palamow	1
Deputy Conservator of Forests, Koliabar, Assam	4
Conservator of Forests, Punjab, Lahore	1
Assistant Conservator of Forests, Punjab	1
" " of " Beas Division, Punjab	1
Deputy Conservator of Forests, Bhagiratee Division, Hurdwar	11
Assistant Conservator of Forests, Sealkote	1
Agri-Horticultural Soc, - Bangalore	12
" " " " " " " " " " " "	1
" " " " " " " " " " " "	29
" " " " " " " " " " " "	51
" " " " " " " " " " " "	168
Dr. Beaumont, Indore	4
General O. E. Babcock, in charge, Public Buildings, Washington, United States	11
Secretary of State for India, London	8
Under-Secretary to the Government of India, Calcutta	1
Secretary to the Government of Bengal	8
Assistant Secretary to the Government of India, Department of Revenue, Agriculture, and Commerce	1
His Highness Prince Rama Varma, First Prince of Travancore	6
Resident of Travancore and Cochin	2
Superintendent, Port Blair, Andamans	1
Deputy Commissioner, Sylhet	1
Barrackpore Park, Barrackpore	4
Officer in charge of Grand Trunk Road, Barrackpore	50
Mr. Beck, Cashmir	12
Messrs. Stanley, Price and Co., Calcutta	42
" " Williamson, Magor and Co., Calcutta	1
J. Martin, Esq., Calcutta	4
Captain Waterhouse, Calcutta	1
C. T. Buckland, Esq., " "	1
John Scott, Esq., Opium Department, Deegah, Bankipore	13
Dr. Hance, H. M. Consul, Whampoo, China	1
D. L. Barr, Esq., " "	1
Dr. Geo. King, Superintendent	19
A. Biermann, Esq., Cinchona Plantation	53
A. T. Jaffray, Esq., Cinchona Plantation, Rungbee	4
A. Parsons, Esq., Darjeeling	8
J. L. Lister, Esq., Cinchona Plantation, Darjeeling	12
James Gammie, Esq., ditto, Muugpoo	248
G. Gallatly, Esq., Rangoon	179
Total	3,270

APPENDIX IV.

Statement showing seeds distributed from 1st April 1876 to 31st March 1877.

To whom supplied.	Number of parcels or packets.
Dr. Hooker, O.B., P.B.B., & C, Director, Royal Garden, Kew, London	386
Dr. Regel, Imperial Garden, St. Petersburg, Russia	78
Professor Balfour, Royal Botanical Garden, Edinburgh	88
W. Eeit, Esq., Botanical Garden, Natal, South Africa	239
Botanical Garden, Graaf Reinet, South Africa	7
" Queensland, Australia	2
" Palermo, Italy	1
" Sydney, Australia	1
" Melbourne	9
" Hong-Kong	65
Royal Botanical Garden, Mauritius	8
Botanical Garden, Brisbane, Queensland, Australia	47
" Melbourne, Australia	2
" Adelaide, South Australia	9
" Buitenzorg, Java	63
" Peradeniyu, Ceylon	31
" Seharunpore, N.-W. P.	338
" Gunneskh Khund, Poona	1
" Hobart Town, Tasmania	8
" Ootacamund, Madras	1
" Rungyroom, Darjeeling	808
Agri-Horticultural Society, Lahore	144
" Bangalore	1
" Lucknow	36
" Calcutta	77
Secretary, Queensland Acclimatization Society, Queensland, Brisbane, Australia	177
W. Bull, Esq., Chelsea, London	60
J. R. Thynne, Esq., Glasgow	72
Messrs. Jules de Cock & Co., Ghent, Belgium	6
" Haage, Schmidt & Co., Erfurt, Prussia	29
Mr. George Dickson, Nurseryman, Newtownswards, I ^r land	6
M. Louis Von Houtte, Royal Nursery, Ghent, Belgium	1
Conservator of Forests, Bahawalpore State, Punjab	10
" of " Bengal	1
Deputy Conservator Forests, Trichinopoly, Madras	1
H. H. Davis, Esq., Forest Department, Chittigong	2
The Industrial Museum, Melbourne, Victoria, Australia	26
Dr. Gray, Museum, Bombay	49
Dr. Bidie, Museum, Madras	10
Messrs. Rovelli, Lago Maggore, North Italy	7
W. B. Freeman, Esq., Model Farm, Shillong	16
Col. Michael, as I., Ootacamund, Nilgheries	1
His Honor the Lieutenant-Governor of Bengal, Belvedere	3
Secretary to the Government of the Punjab, Lahore	1
Colonel Napper, New Ross, County Wexford, Ireland	7
Captain Walker, Saint Magus, London	18
His Excellency Lord Napier of Magdala, Gibraltar	14
Secretary to the Government of Mauritius	9
Sir W. MacArthur, Sydney, Australia	1
Major Money, In charge of Rajah's estates, Durbhunga...	14
Agent for the Governor-General, Indore	6
Zoological Garden, Alipore	6
A. Weeks, Esq., Chairman, District Road Cess Committee, Furreedpore	23
S. J. Umeurah, Esq., Japanese Commissioner	208
Dr. Beaumont, Indore	6
Executive Engineer, Dngshai Division, Dagshai	17
" Bijnore	13
" M Jeypore	75
" N. R. State Railway, Darjeeling	36
District Engineer, Trichinopoly...	25
Assistant Engineer, Nunthcrie	6
Chief Commissioner, Assam	1
The Magistrate of Howrah	21
The Principal of the College, Cuttack	68
" Kishnagar	30
Collector of Cuttack	3
Officer commanding F. Battery, 11th Brigade, Royal Artillery, Saugor	44
" Detachment, 1-11th Regiment	20
" Convalescent Depot, Puchmarhi	11
" G. Battery, 11th Royal Artillery, Nowgong	23
" C. Uth Battery, Royal Artillery, Dinapore	89
" 109th Regiment, Dinapore	100
" 14th Regiment, Benares	27
" G. Battery, 11th Royal Artillery, Allahabad	204
" Detachment, 89th Regiment, Nowgoog	2
Reverend J. Cod, Bishop's College, Howrah	12
" J. H. Budden, Almorah	100
Bengal Club, Calcutta	126
R. Troup, Esq., Holme, Raneekhet	11
H. H. Prince Rama Vanna, First Prince of Travancoro	1
M. Ridley, Esq., Wingfield Park, Lucknow	80
C. Pillans, Esq.* Phoolbari Tea Estate, Silligoorfe	23

APPENDIX IV.—(Continued.)

To whom supplied.	Number of parcels or packets.
J. Feppe, Esq., Opium Department, Ranchi	1
J. Scott, Esq., " " Deegah, Bankipore	88
James Gammie, Esq., Mungpno	1
A. T. Jaffray, Esq., Rungbee, Darjeeling	62
Messrs. Stanley, Price and Company, Calcutta	1
S. S. Apcar, Esq., Garden Reach	2
Messrs. Andrew, Yule and Company, Clive Row, Calcutta	7
Arthur Barclay, Esq., 1st Central India Horse, Goonah, Central India	68
Colonel Chamberlain, Cantonment Magistrate, Raneeekhet	283
Wi Craw, Esq., Superintendent, Forest Plantation, Raneeekhet	1
George Henderson, Esq., Civil Surgeon, Rawul Pindee	9
For Northern Bengal State Railway	1,197
Civil Surgeon, Sambalpore	1
The Commissary of Ordnance, Fort William	20
Municipality of Howrah	6
Captain Glasgow, Her Majesty's 12th Regiment, Calcutta	23
Baboo H. M. Mookerjee, Calcutta	60
W. J. Mountain, Esq., " "	48
W. Maclean, Esq., " "	28
A. C. Trotter, Esq., 17, Elysium Row, Calcutta	100
Mr. Todd, Arsenal, Calcutta	6
A. V. Wichelu, Esq., " "	36
R. J. Sisson, Esq., Barrh	24
G. Ricketts, Esq., Allahabad	6
General Macpherson, y.c., O.B., Mooltan	8
F. Mangles, Esq., Mercara, Coorg	60
Captain Meikle, S. S. <i>Trafalgar</i>	30
J. Myljie, Esq., Beeheab, Shahabad	27
Davis Haskett, Esq., Hyderabad, Deccan	4
Mrs. A. M. Hughes, Kotah, Rajpootana	5
Dr. DeFabeck, Deolee, Rajpootana	36
W. Franklin, Esq., Pomong, Darjeeling	110
Dr. Eddov-s, 2nd Goorkhas, Dehra Doon	35
Captain Ba&^ey, Shillong	86
Mr. Errington Y barrack pore	9
T. H. Oakes, Es ^ j l c u t t a Gate, Fort William	4
H. T. Blandford, E * / *	2
Captain Abbot, Jhallai/ -Rajpootana	102
H. C. Bathe, Esq., Banda "	6
J. Bashford, Esq., Calcutta	65
G. Bartlett, Esq., Calcutta	12
Mr. Daly, Howrah	8
Mr. Maolennan, Fort William	25
Total	7,063

ROYAL BOTANICAL GARDEN,

HOWRAH, NEAR CALCUTTA ;

The 5th June 1877.

GEORGE KING, M.B.,

Superintendent, Royal Botanical Garden, Calcutta.

FINANCIAL DEPARTMENT.

AGRICULTURE.

CALCUTTA, THE 26TH JULY 1877.

RESOLUTION.

READ—

Report of the Royal Botanical Garden, Calcutta, for the year 1876-77.

Read also—

The Government Resolution on the Report for the year 1875-76.

THE Lieutenant-Governor is glad to observe that the progress of the garden during the year has been, on the whole, satisfactory. The season was peculiarly favorable both to the out-door collections and to the plants in the conservatories and plant-houses. The new style of open conservatory continues to answer expectations, and the large cruciform-house built during the year will give additional facilities for the growth of exotics and plants which cannot stand the out-door variations of a Calcutta climate.

2. The appearance of the garden has been much improved under Dr. King's directions, and now, on the Calcutta side, leaves little to be desired. The want of funds stands in the way of completing all that the Superintendent would wish to see done, and the Lieutenant-Governor cannot promise any immediate increase of the grant. Dr. King has, however, made the best possible use of the money at his disposal, and will no doubt continue to do so.

3. The special experiments which have been going on during the year do not, on the whole, seem to have been very successful. The para rubber tree of South America will not flourish in Calcutta, but the artificial propagation of seedlings for distribution to Burmah and elsewhere has not been abandoned. Vanilla culture must now be decisively pronounced a failure. The distribution of ipecacuanha plants has been continued, but the cultivation does not appear to be growing popular. The cultivation of young bamboo shoots for paper-making purposes Dr. King thinks not likely to succeed. The real test will, however, come this year, and the result will be awaited. The plantation of *baobab* is not yet sufficiently advanced to be cut for fibre. - *

4. Dr. King suggests that more practical good would be done if the attention of forest officers were given to the numerous Gramineae and herbaceous Urticaceae and Malvaceae which abound in the forest reserves, and several of which would probably be found to yield a fibre suitable for paper-making. He also thinks that some of the wiry grasses of the sea-coast might turn out to be as good as *esparto* grass. Dr. Schlich will, no doubt, bear in mind the first suggestion, and the Lieutenant-Governor would be glad if Dr. King would himself communicate with the Collectors of the Orissa and Chittagong districts, in order to see if any such grass as he describes exists along the Bengal littoral. A kind of grass fit for paper making grows on the banks of the Adjai, Damooda and other rivers of Burdwan and Chota Nagpore, and may come to be utilised for this purpose. It is described at page 216 of volume I of the Statistical Report.

5. The interchange of plants and seeds has gone on actively during the year. The thanks of the Government are due to the gentlemen mentioned in paragraph 10 of the report for their donations of plants and seeds, and more especially to Messrs. Apcar and Co., and the Agents of the Peninsular and Oriental and British Indian Steam Navigation Companies, for their liberality in having allowed boxes of plants for the garden to be conveyed free of charge.

6. The acknowledgments of Government are also due to the gentlemen mentioned in paragraph 11 for the collections received from them for the herbarium.

7. The Lieutenant-Governor thanks the Superintendent and his staff for their useful labours during the year.

ORDER.—Ordered that a copy of the report and of this Resolution be submitted to the Government of India, Department of Revenue, Agriculture, and Commerce, for information.

Ordered further that a copy of the report and of the Resolution be forwarded to the Conservator of Forests for information, and that a copy of the Resolution be communicated to the Superintendent of the Botanical Garden for information and guidance.

By order of the Lieutenant-Governor of Bengal,

A. MACKENZIE,

Offg. Secy, to the Govt of Bengal

No. 2268.

COPT, -with copy of the report, submitted to the Government of India, Department of Revenue, Agriculture, and Commerce, for information.

No. 2269.

COPT, with copy of the report, forwarded to the Conservator of Forests for information.

No. 2270.

COPT of the Resolution forwarded to the Superintendent of Botanical Garden for information and guidance.

By order of the Lieutenant-Governor of Bengal,

RAJENDRA NATH JIITRA,

Acting Mat. Secy, to the Govt. of Bengal.

CALCUTTA,
The 26th July 1877.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN, CALCUTTA, FOR
THE YEAR 1877-78.

No. 38GK, dated Botanical Garden, Howrah (near Calcutta), the 10th July 1878.

From—GEORGE KING, ESQ., M.B., Supt., Royal Botanical Garden, Calcutta,
To—The Secretary to the Government of Bengal, General Department.

I HAVE the honor to submit herewith the ninety-first annual report of the Royal Botanic Garden.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN, CALCUTTA,
FOR THE YEAR 1877-78.

1. *General Condition of the Garden.*—The changes effected during the past four years on the eastern end of the Garden are now beginning to tell, and the appearance of that end is gradually improving. These alterations consisted in shaping, enlarging, and connecting the numerous scattered pieces of water, in collecting into groups such trees as were not too large to be transplanted, in undulating the soil, in altering old roads and aligning new ones, in planting avenues, and, in short, in treating the grounds with a view to good landscape effects. At the same time a great deal has been done to improve cultivation and drainage. The western end of the Garden, however, still remains untouched, and a considerable area near the great banyan tree is little better than an unsightly swamp. A long, winding piece of water runs through this part of the Garden, and it would neither be difficult nor costly, by deepening and widening this, to get earth enough to raise the level of the remaining part of the ground. This done it might be laid out as a park, and having been once well laid out, it would not cost more to keep it in really good order than is now annually spent in preventing it from being absolutely offensive. The success of the recently-built iron plant-houses has been gratifying: the species planted in the older house presenting masses of dense and healthy foliage, while the orchids have grown and flowered well.

2. *Improvements effected in the Garden during the year.*—Two of the old plant-houses having fallen into dangerous disrepair have been pulled down, and the old iron posts thus obtained have been utilized in extending the large and improved plant-house built in 1874. To that house an addition in the same style was planned some time ago by Mr. Lister, who was then acting as Curator of the Garden. This addition has now been completed, and the original house has thus been enlarged to a total length of 287 feet. Besides the mere accession of space for planting out fine tropical species which had begun to accumulate in our nurseries, the addition adds greatly to the effect of the whole house. In the palmetum several mounds have been thrown up so as to relieve the dead monotonous level that formerly prevailed: the earth to form these groups was got by excavating an entirely new tank and by enlarging and improving the shape of three old ones. By these means this part of the Garden has at once been effectively drained and greatly improved in appearance. Hand in hand with these changes, several roads have been altered, and a number of new groups of palms have been planted out. A much-required road has been made to the west of the plant-house built last year, and a long arm has been added to a tank in that neighbourhood. By no means the least of the improvements that has been carried through during the year has been the diversion of the main road to the right of the river entrance, so as to give room for condensation near the Curator's house of the whole of the nurseries hitherto scattered at distant parts of the Gaikien. The seed and propagating nurseries, the whole of the young garden stock, the potting sheds, tool and storehouses, carpenters and blacksmiths' shops will shortly be accommodated within a single enclosure quite close to the Curator's house (and therefore under his eye), and it is believed that this arrangement will greatly conduce both to efficiency and economy.

3. *Roads and Buildings.*—The new roads made during the year have been already described. The old roads have been kept, as far as possible, in repair.

The road, however, which (running westward from the water entrance) leads to the great banyan tree and Roxburgh's monument, is in such a radically bad state that repairs are but of little avail. This road is by far too low, and nothing short of heightening and relaying it will do it any good. But the funds at my disposal have not been sufficient to enable me to take in hand this which, after all, is not so pressing as the improvement of the Swampy ground referred to in the preceding paragraph. The buildings in the Garden are in fairly good order, with the exception of the old and utterly insufficient house in which are crowded the Herbarium, Library, Office, and the establishment for the collection and issue of seeds. This building, originally a single-storeyed one, was some years ago heightened by the addition of another storey. Shortly after this had been done it showed symptoms of insecurity, and a number of iron pillars had to be introduced on the ground floor. The building has never ceased to leak, and in addition to this defect, the accommodation which it affords is now quite inadequate. The upper storey is devoted to as many of the herbarium cabinets as can be stowed away in it. The herbarium now consists of 93 cabinets of dried plants. Six years ago, when there were only 48 cabinets, there was just sufficient space for consulting specimens and for working at systematic botany. Now the room is so crowded that there is neither light nor space to consult specimens or to carry on efficiently the kind of scientific work for which a herbarium is intended to afford opportunity. My scientific duties are therefore conducted under a great disadvantage. I have had to give up four rooms in my own house to the accommodation of cabinets and unmounted specimens, and the loss of time and labour incurred by frequent reference to collections in another building are very great. This Calcutta collection forms the only large herbarium in India; it contains authentic specimens from almost every Indian botanist from Heyne to Kurz, including excellent sets of Wallich's and Hooker and Thomson's plants; the great majority of the specimens are carefully named, and altogether it is a collection of which it would be hard to estimate the scientific value, and which assuredly deserves to be better housed than it now is. But not only has the herbarium been increasing, but the seed operations have been largely extended within late years. The library also has regularly been added to, while to the office of the Botanic Garden has, in recent years been, added that of the cinchona plantation.

4. *Garden Collector*.—The Garden Collector returned in the early part of the year from exploring the country near Moulmein. The living plants sent by him have been added to the Garden collection, and his dried plants have been mounted, but I have not yet had leisure to name and incorporate them with the herbarium. The Collector is now on the Khasia hills, and will probably remain there during the rains.

5. *India-rubber*.—The seedlings of Para rubber received in the beginning of 1877 were partly retained in this Garden and partly sent to the Cinchona plantation in Sikkim. Several of these plants have died during the year. The plants that still remain here (14 in number) are, however, healthy, and have grown fairly well. Every care is being taken of them, and I hope soon to be able to report that they have been increased in number by artificial propagation; but former experience has made me wary of allowing cuttings to be made until the parent plants have had plenty of time thoroughly to establish themselves. A quantity of Ceara rubber plants, collected in South America by Mr. Cross and sent to this Garden by Sir Joseph Hooker, were received along with the Para rubbers. About one-third of the plants in this consignment were found on arrival to be in bad condition or dead. Of the remainder, five were sent to the cinchona plantation, and the balance were retained here. One of the plants here is now ten feet high, and the others vary in height from two to five feet; but they all look more or less weak and lanky as if the climate were too damp for them. This plant (a species of *Manihot*) was found by Mr. Cross in quite a different kind of country from the Para rubber, and it appears more likely to succeed in India than the latter. My object both with the Para and Ceara rubbers will be to propagate as large a stock of young plants of each as possible, to find out spots with climates suitable for each, and to have small plantations made wherever efficient supervision can be secured in such places.

6. *Vanilla*.—Further experience has only strengthened my conviction that *vanilla* cannot be grown as a crop in the climate of Calcutta with any prospect of success. I observe that even in Bangalore, where for a time it was supposed to have promised well, a similar conclusion has lately been arrived at. The plants now in the Garden will, of course, be attended to, but I do not think it is worth while to go to any further expense in attempting to make a plantation of it to be conducted on commercial principles.

7. *Ipecacuanha*.—A number of plants of *Ipecacuanha* have been sent to the Botanical Garden at Singapore, which enjoys a climate that ought to suit *ipecacuanha* perfectly. A considerable stock of young plants is kept on hand at the Cinchona plantation ready for issue to any applicant. But, like *vanilla*, I fear this valuable drug can never be grown successfully as a crop in any part of Bengal. We have been perfectly successful in propagating the plant from root, cuttings, and seed, and it grows luxuriantly under cover. But out of doors the low night temperature of the cold weather proves too severe for it. During the year 26 pounds of the dried root, taken from plants grown in frames under Mr. Jaffrey's care at Rungbee, were sent to the medical dept for use, previous trials having established the excellence of the Sikkim-grown drug.

8. *Rheea*.—The Government of India having decided again to offer a prize for the invention of a machine to clean *Rheea* fibre, a couple of acres of ground were put under this plant in order that intending competitors might be supplied with green stems to work with. The ground having been trenched and manured, the crop offers to be a good one; but *Rheea* does not appear to me to grow with such luxuriance here as in the drier climate of Seharunpore, where the competition for the Government prize is to be conducted.

9. *Baobab, Bamboo, and other Paper Fibres*.—The curious baobab tree is a native of Africa, but appears for a long time to have been a favourite with Mussulmans in India. Large trees of it are found planted near Calcutta, Patna, Agra, and at many other places in India. Baobab bark began some years ago to be largely imported into London from the Portuguese settlements in Africa, and proved an excellent paper fibre. At the suggestion of Sir Joseph Hooker, I made three years ago a small plantation of it with the view of testing the possibility of growing it sufficient to be used as a paper fibre. For the past two years the plants put out here received a rough kind of cultivation and the grass between them was regularly cut, but, as this could hardly be afforded in a plantation conducted on commercial principles, I did not think it fair to the experiment to continue even the little cultivation which the plants had hitherto received. During the past year the young baobabs have therefore had to fight their own battle, and it is quite clear that the majority of them are going to be mastered by the coarse, deep-rooting grasses which infest the soil everywhere in the plains of Bengal. Such plants as enjoy the shade of a large tree in the neighbourhood of the plantation continue to look very fairly healthy, but those that stand in the open look very sickly. If baobab were to be grown to a profit, it would be hardly feasible to give it cultivation, however rough, after the first year, and it might not always be possible to give it shade. Considering, moreover, the comparatively slow growth of the species (a tree of 20 years old grown in the open girths about 3½ feet at the base and is about 15 feet high), I am driven to the conclusion that baobab is not likely to afford in India a sufficiently cheap paper fibre. My own impression is that a plant yielding an annual crop is more likely to fulfil the financial conditions of success than any perennial which, like baobab, yields a crop only after many years. Acting on this conviction I sent to the India office samples of four common Indian plants, and suggested that their value as paper fibres should be ascertained. The samples consisted of the stem and leaves of (1) the *bhabar-gha** (*Eriophorum comosum*) of the North-Western Provinces, which is so largely used as a material for ropes in Upper India; (2) of *Saccharum spontaneum*, a tall, coarse grass which, under the name of *hash*, is only too abundant in waste places over a large part of India; (3) of *Imperata cylindrica*, the well-known *ooloo* the commonest grass in Lower Bengal; and (4) of *Typha elephantina*, the *hogla* of Bengal, a large bulrush abundant all over Lower Bengal in marshy places and by the sides of tanks and streams. *Eriophorum*, not growing naturally in

lower Bengal, would reach a seaport weighted by the cost of long carriage, and may therefore practically be excluded from competition in the export market; but the other three are common plants all over the Gangetic delta, and could be brought to Calcutta in any quantity and at very low rates. The four samples were reported on by Mr. Routledge, of the Ford Paper Works, near Sunderland, who has devoted so much attention to the utilization of the young shoots of bamboo as a paper fibre. Mr. Routledge states that "all four will unquestionably make paper." "*Eriophorum* is," he says "the best and most easily-worked of the four, as a small quantity of bleach brings it into good order." "The ultimate fibre -is," he continues, "very fine and delicate, rather more so than *esparto*, and of about the same strength. The yield (42 per cent.) is somewhat less I think." "Mr. Routledge goes on to say, "it will make a quality of paper equal to *esparto*. The remainder of Mr. Routledge's report is not very encouraging, but I give it *verbatim*, for I know that the increasing deficiency in the supply and consequent rise in price of materials suitable for paper-making, have been exciting a good deal of interest for some time, and under such circumstances the records of failures, entire or partial, are nearly as useful as the records of success.

"The grass marked *Saccharum spontaneum* ranks next to *Eriophorum* in quality; it is more tender, and certainly not equal to *esparto*; it yields 44 per cent, of fibre.

"The grass *Imperata cylindrica* I do not think suitable for paper, certainly not for printing, although it may suit for what are termed small hands and rough packing papers. It is full of small joints and knots (especially the lower portions of the stalk), which result in harsh, woody sheaves. It gives an yield of 41 per cent.

"The *Typha latifolia* gives a very strong fibre when purged of the glutenous compounds living in its cellular tissue; but, in consequence of this mass of gluten, the yield is very small (only 28*per cent.); it is also extremely difficult to bleach, and loses most of its strength when subjected to that process.

"I do not consider that it would pay commercially to attempt to treat any one of these fibrous materials for conversion into 'stock' for European use, although very possibly, if procurable in abundance and at cheap rates, they might be employed for paper-making locally with advantage.

"To come into this (the home) market, any material must be superior to *esparto* in quality, as no matter how cheap the raw material may be in India, the cost and charges for converting it into stock and transport to Europe will bring its price to afford any profit to the producer as high or nearly as high as *esparto*.⁷⁹

"The[^]Importer therefore must be prepared to sell his stock as cheap or nearly as cheap as *esparto* reduced to the same condition of stock, and must also give the inducement of superiority of quality."

In the resolution on my last annual report it was suggested that I should get from the Orissa and Chittagong coasts specimens of the wiry grasses growing on the beach. This has been done, but no report on the samples has yet been got. I propose to continue to give attention to this subject of paper fibre, and hope to note the results in future reports.

It will be remembered that several years ago Mr. Routledge, an English paper-maker, drew the attention of Government to the value as a paper material of the fibre yielded by the immature shoots of bamboo. Healthy bamboo clumps, as everybody in India knows, send up during every rainy season a certain number of new shoots which, growing with enormous rapidity, in a few weeks attain their full height and afterwards slowly harden, and develop leaves. Mr. Routledge expressed his belief that by a simple treatment in this country a^{si} "stock" might be extracted from these shoots which might be profitably transacted to England for manufacture into paper. During the past two or three years I have put Mr. Routledge's proposals about coppicing bamboo to a practical test, and in my last report I recorded my observations so far as they had gone. I shall now bring them up to date, but before doing so it may be convenient to reproduce what I wrote last year. I therefore quote from my last report :—

"It is essential to the success of Mr. Routledge's process that the bamboo shoots be quite young and succulent, and the great difficulty which at once presented itself to persons

with any knowledge of the mode of growth of Indian bamboos was that such shoots, being produced in moderate quantity from each clump, and only during a limited season of the year, the proposed paper stock-making machinery must, for a large part of the year, necessarily lie idle. To meet this difficulty Mr. Routledge suggested that bamboo clumps might, by proper treatment, be induced, after most of their old shoots had been cut away, to send up from the stools thus bared, regularly and irrespective of season, crops of succulent shoots suitable for conversion into paper-stock. Mr. Routledge's expectations imply a very complete change of habit in the bamboo; for it is pretty well known that bamboo clumps, if entirely cut down, yield for several years but few and small succulent shoots, and, in fact, not unfrequently die. In order, however, to submit the proposed scheme to a trial under my own eye, six clumps of *Bambusa Balcooa* were, cut down last year, i.e. in 1876 at the beginning of the rains between 10th and 20th June, when the buds of the young shoots of the season had completely formed, and were nearly ready to burst through the soil. Soon after the cutting of the old stems, these buds developed into shoots which grew with characteristic rapidity. These were allowed to grow until they began to show symptoms of becoming hard, and on 21st July they were all cut down. They were at once weighed with the following result:—

Clump No.				Number of young shoots.	Weight in pounds.
1	...	...	...	11	166
Ditto	2	...	...	7	102
Ditto	3	..	...	6	78
Ditto	4	...	...	9	100
Ditto	5	...	...	5	42
Ditto	6	...	...	12	192
Total				50	680

This gives an average of 113 pounds of wet young shoots per clump. The time of cutting was the most favourable that could have been chosen, and the crop of shoots yielded was probably as good as it would have been had the clumps remained untouched by the knife. Judging from the size of the dumps, I calculate that at most 80 similar dumps could be grown on an acre of ground. This allows an area of 576 superficial feet to each dump, and such close planting would probably necessitate manuring. Taking the yield of these six dumps as an average, and excluding losses from death and accident, the yield on an acre during the first year of cutting would therefore be 9,066 pounds of fresh young shoots. It must not be forgotten that freshly-cut bamboo shoots are extremely succulent, and that the amount of dry paper-stock that could be got from them would bear a very small proportion to their original weight. An additional difficulty that attends the scheme is that, since only fresh succulent shoots will answer, and these are of too high specific gravity to float, the cost of land carriage to the factory (a very heavy one in Bengal) would have to be incurred. The six dumps above mentioned were well cared for; leaf mould and tank soil were laid round them; and, as compared to similar dumps in the forest, they had the great advantage of immunity from fire and from being grazed on by cattle. Since their young shoots were cut, a considerable number of thin woody twigs have arisen from the bases of the old stems. No fresh young root shoots have, however, appeared. Some such will doubtless appear at the usual time, which would be the beginning of the ensuing rainy season. These shoots shall be cut at the time recommended by Mr. Routledge, i.e. when they are just beginning to become hard and woody, and with the cutting of these the crucial part of the experiment will begin. The results shall be duly recorded in next annual report."

In the beginning of the rainy season of last year the brushwood of thin woody twigs which had been produced by each clump was cut off, but amongst the twigs there were none of the soft, succulent shoots proceeding from the underground stem which are required for Mr. Routledge's process. The early rain of the present season was particularly favourable to the production of young shoots, and the clumps have just again (10th July 1878) been cleared of every twig produced by them since the previous cutting. The result is that, just as last year, the most of the growth consists of hard woody twigs which proceed from the bases of the stools cut two years ago. There are only a few of the succulent shoots proceeding from underground, and the total yield of materials succulent enough for Mr. Routledge's process is 120 pounds, or an average of 20 pounds of green material per clump. In a pamphlet published on the subject, Mr. Routledge estimates that the green raw material dries to one-fourth of its weight, and that the dry material gives 60 per cent, of good paper-stock. I am therefore in a position to give the yield of paper-stock of these six clumps during three years. The yield during the first year was about 17 pounds per clump, equal (allowing 80 clumps to the acre) to about 1,360 pounds

per acre. During the second year the yield was nothing, and during the third year it was 3 pounds per clump, or equal 240 pounds per acre. Mr. Eoutledge estimates that (according to a method of planting which he proposes, but which I believe to be quite impracticable) the yield per acre would be 6 tons, and that this yield would be annual. The value of the paper-stock delivered in England would be from £20 to £25 per ton, so that, even assuming (which is by no means the case) that green bamboos are of very little value, the proposed new industry does not present a hopeful financial aspect.

10. *Carab and other economic trees.*—A smaller quantity of the seed of the Carob of the Mediterranean (the *Oeratonia siliqua* of botanists) was sent some time ago to the Garden to be sown, with the view of introducing this tree into Bengal. The pod of this species, as Government are aware, contains a sweet nutritious pulp which forms an excellent food for cattle and horses. But the tree does not naturally affect a climate and soil in the least like those of the Gangetic delta, and I never looked on the attempt to add it to the fodder plants of Bengal as at all likely to succeed; and, as a fact, the majority of the seedlings damped off before they were six inches high. About 50 seedlings remain, some of which have been planted out, while the others, which are too small for planting out, remain in pots. But although all have been duly cared for, none are vigorous. An American tree, which also yields a sweet nutritious pod, has been much more successful than the Carob. This is the *Pithecolobium saman*, a native of Peru, "which, from its supposed property of inducing local showers, is in that country known as the "rain-tree." An exact description and explanation of the phenomenon which gave rise to this name has only quite recently been given in the columns of the English periodical *Nature* by Dr. Dyer, who quotes from the eminent South American traveller, Mr. Spruce, as follows: "A little after seven o'clock we came under a lowish spreading tree, from which, with a perfectly clear sky overhead, a smart rain was falling. A glance upwards showed a multitude of cicadae sucking the juices of the tender young branches and leaves, and squirting forth slender streams of limpid fluid. We had barely time to note this when we were assailed by swarms of large black ants, which bit and stung fiercely, and obliged us to beat a retreat, my companions calling out *thuy ran tamia-caspi! tamia caspi!*" When we had shaken off our assailants, I ventured to approach the spot so near as to make out that the ants were greedily licking up the fluid as it fell." There are in the Garden two sets of this tree, one consisting of five trees about eleven years old, and the other consisting of 84 trees which were planted in an avenue four years ago. The tree is an extremely rapid grower, and seems perfectly at home in the climate and soil of Lower Bengal. It has a thick trunk, which, at a comparatively short distance from the ground, divides into large branches, which form a spreading and very dense crown. This habit, together with the softness of the timber, make the tree of little value as a source of material for building, but it would probably answer very well as a firewood tree, and as a shade tree I know nothing to equal it in Bengal. It grows faster than any indigenous tree known to me, and the only introduced tree which rivals it is the *Casuarina equisetifolia*. The five older trees in this garden girth on an average seven feet nine inches at three feet from the ground; while of the four-year old trees, which are planted 32 feet apart as an avenue on either side of a road 20 feet wide, the heads now meet across the road and afford an excellent shade. The average height of these younger trees is about 20 feet, and the average girth of their stems at three feet from the ground is 29 inches. The older trees have this year, for the first time, given seed; the pod is quite as sweet as that of the Carob, and is abundantly produced, and altogether I consider *Pithecolobium saman* a much more hopeful source of cattle fodder than the Carob while, as a rapid grower, it is unrivalled. Quantities of seeds of various species of *Eucalyptus* were sent by the Government of India during the year for trial in the garden. Of these a considerable proportion failed to germinate, and of those which did germinate the majority of the seedlings damped off during the rainy season, and at the end of the year only three plants remained alive. This result is quite in accordance with former experience, which goes to show that the project of ameliorating the malarious climate of Lower Bengal by the free planting of *Eucalyptus* is perfectly Utopian. The water-logged alluvial soil and hot steamy climate of this part of

India are totally unsuited to any species of these Australian trees which has yet* been tried. Moreover, it seems highly doubtful whether, even where it grows vigorously, the *Eucalyptus* has any especial effect; on malaria, I understand that many species of *Eucalyptus* grow well at Shillong and at several of the stations on the North-Western Himalaya—a fact which in itself offers a strong argument against the probability of their success in a climate so totally different as is that of Calcutta.

11. [^] *Interchange of Seeds and living Plants*.—The total number of seed-packets issued during the year amounts to 5,142, while 2,43a were received. Of living plants, 18,510 have been issued, and 10,177 have been received. The contributors to whom the Garden is chiefly indebted are Sir Joseph Hooker of the Royal Garden, Kew; Dr Thwaites, F.R.S., CM.G., Ceylon; Sir W. Macarthur Sydney, who has from time to time presented magnificent collections of new crotons; Major Badgetey, Shillong; and Mr. Man, Port Blair, an indefatigable contributor of Andamanese plants, to whom the Garden is particularly beholden.

[^] 12. *Herbarium*.—Considerable additions have been made to the herbarium during the year. The chief of these is the collection of the late Mr. S. Kurz, who, prior to his death, presented the whole of his dried plants to the Garden. Mr. Kurz's herbarium comprises specimens from all parts of India, but is especially rich in Burmese, Andamanese, and Bengal plants. It contains also a number of Malayan species and a good many European plants. Altogether, it forms a great and useful addition to the Government collection. A very interesting collection of plants, made at the Cape of Good Hope in 1797, by the late Dr. Roxburgh, has been presented by Dr. Roxburgh's surviving daughter. Dr. Roxburgh, who is justly named the father of Indian Botany, was for a long period the Superintendent of this Garden; but, until the receipt of his daughter's gift, the Garden herbarium did not contain a single authentic specimen of his collecting. It is some satisfaction to have received, even at this late date, so interesting a relic of this eminent botanist. Dr. J. Scully has contributed a valuable series of plants from Nepal—the only collection received from that country since Dr. Wallich's expedition there yearly 60 years ago. I have also to thank Dr. O. T. Duke for an interesting [^]k of Beluchistan plants collected near Khelat and Quetta. Colonel Beddome has contributed a considerable number of rare plants from the south of India, as well as 64 species of Nilghiri mosses. To Mr. J. Sykes Gamble, of the Forest Department, the herbarium is indebted for a fine set of Simla plants comprising about 500 species, and also for a number of Sikkim plants. Mr. J. F. Duthie, Superintendent of the Seharunpore Botanic Garden, has given about 150 specimens of plants of the North-West Himalaya; and Mr. J. Ware-Edgar, c.s.i., late Deputy Commissioner of Darjeeling, contributed about 20 species collected by natives in the Chumbi Valley. A considerable number of dried plants have been sent by the Garden Collectors from Tenasserim and the interior of Sikkim.

13. *Library*.—Very few books have been added during the year. A considerable number of volumes indented for in former years still remain to be sent out by the India Office.

14. *Official changes*.—Not only this Garden, but the science of Botany generally, has sustained an irreparable loss by the death of Mr. Sulpiz Kurz. Mr. Kurz, a native of Munich, after spending some years in Java, was appointed Curator of the Herbarium here in 1864. He worked indefatigably and published numerous papers on botanical subjects, his last work having been a Forest Flora of British Burmah. Mr. Kurz went on leave in November last, and proceeded on a coasting tour to Burmah and the Straits for the benefit of his health. He died at PenaAg on 9th February of fever complicated by abscess in the thigh. Mr. Parsons having resigned the service of Government, his place as Curator was filled by Mr. Lister, and more recently by Mr. Biermann, to both of whom my best acknowledgments are due for their hearty devotion to their duties.

15. The usual returns are sent as appendices.

APPENDIX A.

Plants received at the Royal Botanical Garden from April 1877 to 31st March 1878.

FBOM	Wardian cases.	Boxes.	Number of plants.
Boyal Botanical Garden, Sew Ceylon...	4	1	241
Botanical Garden, Cape of Good Hope	3	3	73
" " Madras	1	1	1,557
" " Bangalore	1	1	40
" " Ootacamund	1	1	37
" " Singapore	2	1	11
" " Melbourne	1	1	82
" " Natal	1	1	74
Acclimatization Society, Queensland	1	1	20
Agri-Horticultural Society, Madras	1	1	19
" " Calcutta	1	1	33
Bight Hon'ble Lord Napier of Magdala	1	1	298
Sir William Me Arthur, Camden Park, Sydney	1	1	2
G. Bruncing, Esq., Melbourne	1	1	2
B. Jameson, Esq., Ootacamund	2	2	44
A. Gray, Esq., Penang	3	2	52
M. Louis Van Houtte	1	1	114
Messrs. Bryant and May, London	1	1	47
Captain Elwes, England	1	1	25
Conservator of Forests, Punjab	1	1	105
Major Badgeley, Shillong	6	1	3
Colonel B. H. Beddome, Madras	1	1	146
Major Seaton, Burmah	1	1	3
S. Knrz, Esq., from Pegu	1	1	4
General the Hon'ble H. Bamsay, Almorah	1	1	4
Dr. Cornish, Madras	1	1	9
" Pilcher, Howrah	1	1	12
" Watt, Hooghly	1	1	7
J. E. O'Connor, Esq., from Burmah	1	1	29
Major Berkeley, Madras	1	1	128
E. H. Man, Esq., Port Blair	3	1	157
Dr. Nicholson, Presidency Jail, Calcutta	1	1	81
W. H. Gilbert, Esq., Bangoon	1	1	70
J. Peppe, Esq.	1	1	26
J. C. Hardinge, Esq., Bangoon	4	1	2
J. Jarbo, Esq., Chittagong	1	1	202
A. B. Warwick, Esq....	1	1	54
Dr. Armstrong	1	1	60
Government House, Calcutta	1	1	287
Rajah Baj Cooxnar Boy	1	1	3
G. Bartlett, Esq.	1	1	5
Collected by the Superintendent in Sikkim	5	1	10
" by J. L. Lister, Esq., in Sikkim	11	1	471
" by G. Gallatly, Esq., in Burmah	13	1	528
J. Gammie, Esq., Government Cinchona Plantation, Bungbee	22	1	3,571
A. Biermann, Esq., Monghoo	1	1	882
Captain Bailey, Howrah	1	1	25
C. Sutherland, Esq. ...	1	1	15
Baboo S. P. Chatterjee	1	1	13
" N. N. Mullick	1	1	139
J. Owen, Esq.	1	1	14
T. J. Morton, Esq.	1	1	1
S. Price, Esq.	1	1	1
H. B. Cooke, Esq., from Simla Hills	4	1	48
G. Bicketts, Esq., Allahabad	3	1	41
W. Judge, Esq., Darjeeling	1	1	1
W. Waterfield, Esq....	1	1	1
Horee, a Native nurseryman, Calcutta	1	1	93
Shreenath, a Native nurseryman, Calcutta	1	1	82
Unknown ...	1	1	12
Total	26	00	10,177

APPENDIX B.

Plants despatched from April 1877 to March 1878.

To	Wardian cases.	Boxes.	Number of plants.
His Excellency the Viceroy, Government House, Calcutta	* 81
His Honor the Lieutenant-Governor of Bengal	395
Right Hon'ble Lord Napier of Magdala	...	1	31
Royal Botanic Garden, Kew	...	5	341
» » » Ceylon	...	1	205
Botanic Garden, Glasgow	...	1	107
» » » Natal	...	1	273
» » » Bangalore	...	1	34
>> » » Melbourne	...	1	50
» » » Singapore	...	2	200
» » » Mauritius	...	2	265
» » » Ootacamund	...	1	49
» » » Mussoorie	...	1	325
» » » -Kungyoon	...	3	305
A. Gray, Esq., Penang	...	2	55
Acclimatization Society, Queensland	...	4	239
Colonel Beddome, Ootacamund	...	1	36
Zoological Garden, Calcutta	2,267
Agri-Horticultural Society, Calcutta	280
» » » Lahore	...	4	86
Eden Garden, Calcutta	148
G. Brunning, Esq., St. Kilda Nursery, Melbourne	...	1	41
E. H. Man, Esq., Port Blair	...	4	122
Major E. C. Impey, Oodeypore, Rajpootana	49
His Highness the ex-King of Oudh	46
Hon'ble Baron Henby, Gellong	...	1	50
Colonial Secretary, Western Australia	...	1	18
Sir William Me Arthur, Camden Park, Melbourne	...	2	51
Baron Van Wittgenstein	37
Chief Commissioner, British Burmah	...	1	3
General Hospital, Calcutta	158
Dum-Dum Hospital	20
Howrah Hospital	254
Presidency College, Calcutta	334
St. Thomas' School, Howrah	12
Wards' Institute, Calcutta	44
LaMartiniere College, Calcutta	83
Government Salt Golahs, Sulkeah	804
Manbhoom Jail Garden	...	4	58
Midnapore	...	6	456
Superintendent, Central Prison, Benares	...	7	190
» » » Jail, Bhagulpore	...	2	66
» » » Cotton Experiment Economic Garden, Scinde	...	1	20
Conservator of Forests, Moulmein	...	1	14
Cantonment Magistrate, Dum-Dum	500
Hon'ble P. B. Kemp, c.s.	1
Howrah Municipality	413
Alipore	44
Hooghly	100
J. C. Hardinge, Esq., Rangoon	...	1	111
R. Cooke, Esq.	156
C. T. Buckland, Esq.	59
Sir George MacCay	...	1	139
Eev. W. Ayerst	...	1	70
C. H. Pillans, Esq., Silligoorie	...	6	77
C. C. Kane, Esq.	...	4	76
Dr. S. C. Mackenzie	5
W. B. Jleeve, Esq.	11
Major W. F. Badgeley, Shillong	...	7	78
Hoboo J. B. Law	2
Mrs. Anderson	1
Baboo R. B. Sanyal	4
J. Mathews, Esq.	...	5	124
J. H. Peppe, Esq., Ranchi	...	1	2*
A. T. Grant, Esq.	...	1	24
J. Schalch, Esq.	...	4	57
A. Parsons, Esq.	23
J. Hamilton, Esq.	62
The Hon'ble H. Cockerell	...	1	8
Baboo H. N. Roy	23
Colonel Cadell, Madras	...	1	33
Messrs. Balmer, Laurie & Co.	...	1	24
Captain Hughes, British Burmah	...	2	206
District Superintendent of Police, Dacca	...	2	82
Commissary of Ordnance, Calcutta	58
J. Beames, Esq., Cuttack	18
Surgeon-General J. F. Beatson, Calcutta	10

APPENDIX B—continued.

To	Wardian cases.	Boxes.	Number of plants.
F. E. Pargiter, Esq.	2	50
Baboo N. G. Chatterjea, nurseryman, Calcutta	166
W. Rf Robertson, Esq., Madras	..... 1	.....	6
For Rifle Range, Ballygunge	600
Dr. D. D. Cunningham	36
W. M. Smith, Esq., Nya Doomka	5	105
Dr. E. Bonavia, Lucknow	1	8
Baboo H. M. Banerjea	68
Colonel Watson, Buxa, Bhutan	2	264
Prince Noorooddeen Khan, Tallygunge	60
Miss Fendall	106
Dr. Payne	22
S. T. Apar, Esq.	23
Baboo G. C. Banerjea...	30
" G.D. Banerjea, Bhagulpore	4	60
R. Turnbull, Esq.	4
Moonshee Mallee	8
Baboo K. K. Ghose	6
" P. C. Sein	62
" S. P. Chatterjea	62
C. Palmer, Esq.	17
Baboo O. K. Dutt	33
" N. L. Dey	1
" 8. C. Boy	2
T. Grant, Esq., Sooree	8	131
C. Davis, Esq.	6
Baboo K. X. Dose	4
T. Palmer, Esq.	22
Colonel Lees	34
A native nurseryman, Calcutta	60
Baboo K. M. Mookerjea	6
" B. C. Sen	4
Thomson, Esq., Sealdah	2
T. V. Mackintosh, Esq.	6
Baboo H. C. Mookerjea	1
" Prosonno Coomar Bidayruttno	6
" N.C. Dey	2
Quarter-Master, Fort William	150
Major B. F. Angelo, Chunar	..... 7	9	298
F. Jarbo, Esq., Chittagong	1	14
Baboo B. N. Mullick	33
" 8. S. Mullick	1
Captain Clayton	20
Baboo N. N. Mullick...	18
F. Greenway, Esq.	8
H. B. H. Turner, Esq.	4
G. Bartlett, Esq.	44
S. Price, Esq.	13
Shreenath, nurseryman, Calcutta	76
H. Jebens, Esq.	1	24
Baboo B. M. Mullick	16
" N.C. Roy	116
" Baj Coomar Roy	36
H. B. Williams, Esq.	9	72
Captain Reynolds	1	24
D. McCorkindale, Esq., Seebpore	30
Lieutenant-Colonel Tulloch, Assam	1	6
Baboo H. M. Mookerjea	1
" U. P. Coondoo	2
" H. C. Gossain	11
J. Breman, Esq.	13
Baboo J. N. Mullick	3
" N. N. Mullick...	4
D. L. Barr, Esq.	12
Captain Harman	25
D. B. Lyall, Esq.	8	200
Lieutenant-Colonel B. E. Chambers	2	40
J. E. O'Connor, Esq.	27
W. H. Irvin, Esq.	12
M. G. Roberts, Esq.	3
J. Owen, Esq.	26
Shaik Amsuddin	48
Captain J. H. Beily	11
W. H. Holmes, Esq....	300
Baboo H. P. Sen	1
W. J. Ainsworth, Esq.	44
B. Cockburn, Esq.	1	12
D. Low, Esq.	9
J. B. Anderson, Esq.	3	36
C. B. Garrett, Esq., cs.	7	445

APPENDIX B—concluded.

To	Wardian cases.	Boxes.	Number of plants.
W. H. Hardinge, Esq.	2
J. L. Michael, Esq.	1	20
Rev. Phillips, Midnapore	6
„ O. R. Batchelor, M.D.	10
S. T. Apcar, Esq.	13
Baboo B. L. Roy	16
Lunatic Asylum	4
A. Sprenger, Esq.	...	2	36
Garrison Quarter-Master, Fort Vellore	200
G. P. Morton, Esq.	...	1	48
Sergeant Russell	4
—Laurie, Esq.	...	1	21
W. O. Wood, Esq.	6
A. S. Lethbridge, Esq., Cuttack...	...	2	24
Baboo P. C. Lahoor...	8
Dr. L. Spencer, Agra	...	1	20
C. A. N. Wallich, Esq., Darjeeling	...	2	36
G. M. Eneebone, Esq., „	...	2	36
W. G. Lemesurier, Esq., „	...	2	36
G. S. Lemesurier, Esq., „*	...	2	36
P. U. O. Scanlan, Esq., „	...	2	36
C. Brownfield, Esq.	27
E. M. Reilly, Esq.	...	1	26
Mrs. Scott	18
Dr. Purves, Darjeeling	...	1	22
Dalhousie Square Garden	9
Baboo N. M. MuUick	6
For Fort William	20
H. T. Blanford, Esq....	27
Mrs. Cockerell	28
H. B. F. Thompson, Esq.	27
Surgeon-Major Piothall	...	1	6
T. Hudson, Esq.	60
J. Gammie, Esq., Government Cinchona Pismation, Mungpoo	...	4	120
Dr. Bryant	...	1	37
„ Cornish, Madras...	...	1	31
Horee Mallee	8
Mrs. Ferres	36
Rev. C. J. Waterhouse	102
Baboo M. Mundul	2
J. B. McPhun, Esq.	12
J. W. Edgar, Esq., cs.i., Arrah...	...	5	108
Mrs. Stewart	100
J. L. Lister, Esq., Mungoo	...	2	71
R. Barry, Esq.	2
W. Turner, Esq.	7
G. Ricketts, Esq.	...	2	36
Major Bradford, C.B.I., Mount Abu	...	4	34
Captain Jhanke	16
„ Atkins	12
T. V. McIntosh, Esq.	...	1	87
Total	38	177	17,483

APPENDIX O.

Statement showing Seeds received from 1st April 1877 to 21st March 1878.

From whom received.	Number of sacks, panels, or packets.
Government of India, Department of Bevenue, Agriculture, and Commerce	11
Inspector-General of Forests	7
Conservator of Forests, North-Western Province!	1
„ „ British Burmah	1
„ „ Mysore	13
Deputy Conservator of Forests, British Burmah	3
Assistant „ Rangoon	1
Deputy „ Chittagong	2
„ Chickalda, Hyderabad	1
„ Banikhet	2
„ Gurhwal	12
„ Bhagirutty Division	1
„ Nairn Tal	1
„ Dehra Doon	4
„ Xumaon	7
Assistant „ Jounsar Bawar	4
„ „ Berars	19

APPENDIX 0—concluded.

From whom received.	Number of sacks • parcels, or packets.
Sir J. D. Hooker, C.B., Eoyal Garden, Kew, London	10
Dr. Regel, Imperial Garden, St. Petersburg, Eussia	998
Botanical Garden, Seharunpore	107
" " Jamaica	16
" " Peradeniya, Ceylon	288
" " Buitenzorg, Java	« 0
" " Adelaide, Australia	50
" " Brisbane, "	4
" " Melbourne	1
Baron Von Muller, Government Botanist, Melbourne	58
Botanical Garden, Mauritius	16
Queensland Acclimatization Society, Queensland	111
Agri-Horticultural Society, Calcutta	5
" " Lucknow	65
" " Bangalore	4
" " Madras	8
M. Louis Van Houtte, Eoyal Nursery, Ghent, Belgium	112
M. Jules deCock, Ghent, Belgium	47
His Excellency Lord Napier of Magdala, Gibraltar	1
His Highness Eama Yarma, First Prince of Travancore	2
Dr. Cunningham, Calcutta	1
Collected by Superintendent	149
" by Mr. Gammie in Cinchona Plantation	U
" by Mr. Lister in Sikkim	39
" by Mr. A. T. Jaffrey in Sikkim	100
Mr. E. Ernington, Barrackpore	9
G. Man, Esq., Andamans	6
John Scott, Esq., Opium Department, Bankipore	1
Dr. G. G. Sutherland, Aboo	1
Colonel Chamberlain, Banikhet	1
E. A. Sterndale, Esq., Municipality, Alipore	1
J. H. Gilbert, Esq., Rangoon	1
Mr. Ridley, Lucknow	5
Messrs. Stanley Price & Co., Ballygunge	79
Mr. G. Chendroff, M [^] skow	7
Dr. Simons, Jorehat	1
Purchased	6
Total	2,432

APPENDIX D.

Statement showing *mtd*\$ distributed from *Ik April 1877* to *31^a March 1878*.

To whom supplied.	Number or parcels or packets.
Officiating Assistant Secretary to the Government of Bengal	4
Assistant Secretary to the Government of India, Department of Revenue,	
Agriculture, and Commerce	2
Conservator of Forests, Sikkim	1
" " i, Lahore	1
Deputy Conservator of Forests, Moulmein	35
Government of Mauritius	U
His Excellency Lord Napier of Magdala, Gibraltar	135
The Earl of Auckland, Edenthorpe, Doncaster	35
Lord Ulick Browne, Darjeeling	1
The Countess of Mayo, London	56
Lady Muir, London	67
Sir J. D. Hooker, C.B., Royal Garden, Kew	287
Dr. Bagel, Imperial Garden, St. Petersburg	14
Professor Balfour, Botanical Garden, Edinburgh	3
Botanical Garden, Melbourne, Australia	11
" " Brisbane, Queensland, Australia	33
" " Golden Spring, Jamaica	59
" " Graff Beinet, Cape of Good Hope	1
" " Sidney, Australia	1
" " Tasmania	3
" " Adelaide, Australia	13
" " Buitenzorg, Java	28
" " Mauritius	14
" " Peradeniya, Ceylon	41
" " Palermo, Italy...	2
" " Soharunpore	796
" " Kungyroom, Darjeeling	785
Baron Von Muller, University, Melbourne	27
Agri-Horticultural Society, Madras	3
" " Lahore	87
" " Lucknow	4
" " of India, Calcutta	120

APPENDIX D—continued.

To whom supplied.	Number of parcels or packets.
Secretary to the Queensland Acclimatization Society, Queensland, Australia ...	91
M. Louis Van Houtte, Ghent, Belgium ...	66
MM. Jules deCock et Scaur, Ghent, Belgium ...	7
Messrs. Haage and Schmidt, Erfurt, Prussia ...	29
M. A. Van Geert, Ghent, Belgium...	8
Mrs. Bladen Neill, Victoria, Australia ...	1
Mr. J. Brunning, St. Kilda Nursery, Melbourne, Australia ...	1
Messrs. J. G. Thynne & Co., Glasgow ...	1
„ Veitch & Co., Chelsea, London ...	1
Mr. William Bull, Chelsea, London ...	15
The Secretary, Public Library and Museum, National Gallery, Victoria, Australia	64
Commanding Officer, F. Battalion, 11th Brigade, Saugor ...	64
„ „ 2-1 Royal Scots, Saugor ...	30
„ „ Convalescent Dep6t, Pachmarhi ...	48
„ „ 39th Regiment, Nowgong ...	36
„ „ 8th Battalion, Royal Artillery, Nowgong ...	38
„ „ 1st Battalion, 2nd Regiment, Cawnpore ...	45
„ „ 7th Battalion, 6th Brigade, Darjeeling ...	61
„ „ 109th Regiment, Dinapore ...	73
„ „ 92nd Highlanders, Benares ...	30
Station Staff Officer, Neemuch ...	1
Major R. Langdale, 73rd Regiment, Subathoo ...	24
„ Angelo, Commandant, Chunar ...	1
Sir William Rose, Upper Tooting, Surrey, England ...	50
J. H. Elwes, Esq., Cirencester ...	10
Rev. G. Homer, Mills Rectory, Frome ...	28
Dr. Bennett, Mentone ...	116
M. Decaisne, Jardin des Plantes, Paris ...	2
Baron Wittgenstein, care of German Consul, Calcutta ...	24
James Dickenson, Esq., Port Arlington, Victoria, Australia ...	3
Italian Consul, Bombay ...	1
Captain Stanley, ship <i>County of Lancaster</i> ...	30
J. Martin, Esq., Singapore ...	3
Rev. D. E. Kinkaid, Kansas, United States, America ...	161
„ H. Corbyn, Hazara, Punjab ...	3
R. M. Keys, Esq., ...	3
D. Clerke, Esq., Brisbane, Australia ...	4
Municipality, Howrah ...	47
C. T. Nepean, Esq., Moulmein ...	61
Dr. Purves, Darjeeling ...	10
D. M. Murray, Esq., Darjeeling ...	1
Major Lewin, Darjeeling ...	1
A. T. Jaffrey, Esq., Rungbee ...	1
J. Kennedy, Esq., Darjeeling ...	2
A. H. Tyndal, Esq., Darjeeling ...	1
J. Munro, Esq., „ ...	45
J. L. Lister, Esq., Mungpore ...	28
James Qammie, Esq., „ ...	45
C. C. Kane, Esq., Attreekheth, Mungledye, Assam ...	31
Dr. Parsons, Borsilla Tea Company, Upper „ ...	2
Thomas S. Tram, Esq., Kumaon ...	1
J. E. Bellaris, Esq., Almorah, „ ...	7
Major Impey, Political Agent, Oodeypore, Rajputana ...	73
Dr. G. G. Sutherland, Aboo, „ ...	27
Captain Abbot, Jallowar „ ...	6
„ Wyllie, Commissariat Department, Lucknow ...	50
— Ridley, Esq., Wingfield Park, Allahabad ...	5
Mrs. Marindin, Buair ...	15
Baboo Inderdeo, Murree ...	12
W. Haskell, Esq., Hyderabad ...	1
Messrs. Delenja, Reid & Co., Galle ...	1
J. F. Staples, Esq., Prome ...	45
Dr. Bryan, S.S. <i>Hydaspes</i> ...	67
„ Garden, Tezpore, Assam ...	50
Chester Macarthur, Esq., Kattywar ...	66
J. M. Woodrow, Esq., Poona ...	3
F. J. Moore, Esq., Deputy Commissioner, Rotack ...	1
G. Caine, Esq., Ghazipore ...	1
J. Harrison, Esq., Sumbulpore ...	12
Collector of Cuttack ...	1
John Scott, Esq., Opium Department, Banlipore ...	12
Mr. R. Errington, Barrackpore ...	20
Dr. G. Watt, Hooghly ...	143
Mrs. M'Corkindale, Seebpore ...	12
Eev. H. J. Corbyn, Hazara, Punjab ...	10
Deputy Commissioner, Sirsa, „ ...	6
J. Koeck, Esq., Singapore ...	7
Captain S. S. Jones, Cantonment Magistrate, Hyderabad... ..	6
J. Coles Hardinge, Esq., Rangoon ...	6
H. H. A. Sashiah Sastri, Dewan of Travancore, Travendrum ...	1
Dr. Wheeler ...	10
Messrs. Begg, Dunlop & Co., Calcutta ...	3
„ Gillandera Arbuthnot & Co., „ ...	1
„ Hoare, Miller & Co., „ ...	1

APPENDIX D~concluded.

To whom supplied.						Number of parcels or packets.
Messrs. Mackillican & Co.,	Calcutta	...	...	...	...	1
„ Stanley, Price & Co.,	„	...	...	...	...	116
C. A. Jebens, Esq.,	„	...	...	...	...	10
Mr. George Bartlett,	„	...	...	...	...	20
J. E. O'Connor, Esq.,	„	...	...	...	...	20
Mr. A. Parsons, Botanical Garden,	„	...	...	...	...	14
R. N. Plmm, Esq.,	„	...	...	...	...	36
M. Bourke, Esq., Bengal Club,	„	...	...	...	...	50
Mr. Price	„	...	...	...	...	1
A. Ferryman, Esq., ship <i>Wiltshire</i>	„	...	...	...	...	51
W. Nicholls, Esq.,	Calcutta	...	...	...	...	50
Mr. Cooke, Eegistrar, Foreign Office,	„	...	...	...	...	3
B. H. Stanton, Esq.,	„	...	...	...	...	2
Total						5,142

FINANCIAL DEPARTMENT.

AGRICULTURE.

CALCUTTA, THE 10TH AUGUST 1878.

RESOLUTION.

HEAD—

Report of the Royal Botanical Garden, Calcutta, for the year 1877-78.

Read also—

The Government Resolution on the Report for 1876-77.

THE Superintendent is quite justified in saying that the* appearance of the Garden, particularly on the eastern or Howrah side, has been considerably improved by the alterations which have of late years been carried out under his orders, and which are now beginning to show their full effect as the plants grow up. The scattered tanks have been enlarged, improved in shape, and connected, and the trees that were not too large to be transplanted have been collected into groups, while the soil has been rendered undulating, and the ground generally treated with a view to producing good landscape effects. The Conservatory built in 1874 has been extended, and the new Plant-house constructed last year has proved successful. The western end of the Garden, however, lies very low and presents an unsightly appearance. The changes suggested by Dr. King, with a view of laying out this part of the Garden, have the lieutenant-Governor's entire approval, and estimates should be made for deepening and widening the serpentine water, and throwing the earth obtained by excavation into slopes and undulations. The general improvement in the Garden of late years has been very marked, and the new Plant-houses have been thoroughly successful.

2. Considerable additions have been made to the Herbarium during the year. The chief of these is the collection of the late Mr. S. Kiurz, Curator of the Garden, who, prior to his death, presented to the Garden the whole of the specimens of plants collected by him from all parts of India, besides a number of Malayan species and European plants. A very interesting collection of plants, made at the Cape of Good Hope in 1797 by the late Dr. Roxburgh, has also been presented by his surviving daughter. The building in which the Herbarium and Library are placed is not suited for the purpose, and the accommodation which it affords is insufficient. The necessity for enlarging this building was admitted in 1876, but want of funds has hitherto prevented this necessary improvement being carried out. Arrangements have now been made to secure the enlargement and improvement of this building, and the work will, if possible, be done during the current year. The Superintendent should at once place himself in communication with the Public Works Department in regard to the additions and alterations required for the Herbarium and Library.

3. The present report, again, shows that the experiments which have been tried for some years past in cultivating in Calcutta certain special plants have not been attended with success. It is useless to attempt to grow in Calcutta plants to which the climate is entirely unsuitable, and all that can be done is to endeavour to import, propagate, and raise young stock for distribution to suitable localities. Dr. King is endeavouring, by means of artificial propagation, to grow a sufficient stock of the *Para rubber* and *Geara rubber* plants of South America, with a view to their being ultimately formed into small plantations in places possessing a suitable climate, and where efficient supervision can be secured. The cultivation of *Vanilla* must be abandoned, as it is now a decided failure. The *Ipecacuanha* also cannot be successfully grown in

Calcutta as a Crop, owing to the low night temperature of the cold season proving too severe for it; but a stock of young plants is kept at the Cinchona Plantation for distribution. *Rheea* does not thrive in Calcutta so well as in the drier climate of Saharunpore; but the Government of India having again offered a prize for the invention of a machine for cleaning rhea fibre, Dr. King has very properly put a few acres of ground under the plant to meet applications for green stems. The *Eucalyptus* is not suited to the climate of Lower Bengal. The *Carobj* which if successfully cultivated, would afford excellent fodder for cattle, has been found to fail. But another fodder plant, the *Pithicolum loman* of Peru seems to be well suited to the climate and soil of Bengal. Some of the trees have during the year given seed: the pod is quite as sweet as that of the carob, and is abundantly produced, while, as a rapid grower, the tree is unrivalled.

4. Dr. King has paid particular attention to the important experiment of growing the various kinds of paper fibres which have from time to time been suggested to him : but the result of his experience is not very hopeful. The *Baobab* does not yield an annual crop and cannot be grown with sufficient cheapness to pay. The proposals of Mr. Routledge, who has devoted much attention to the subject, about coppicing bamboo, and extracting from its immature shoots a stock fit for the manufacture of paper, have been put to a practical test during the last two or three years. Although the experiment has been conducted under the most favourable circumstances, the twigs produced by each chimp of bamboos are not the soft succulent shoots which are required for Mr. Routledge's process, and, on the whole, Dr. King thinks that the proposed industry is not likely to succeed in India. Specimens of four common Indian plants were sent to the India Office in order that their value as paper fibres should be ascertained. The plants were tested by Mr. Routledge, who found that they could be employed in making paper, but the cost of converting them into stock and of transport to Europe would doubtless be so high as to prevent any attempt to use them for the manufacture of paper from being commercially successful. As suggested in the Government Resolution on the report for 1876-77, Dr. King has procured specimens of the grass which grows on the Orissa and Chittagong coasts, and hopes to report the result of his enquiries in future reports. His attention is again drawn to the grass which grows on the banks of the Adjai and Damoodah, and the Lieutenant-Governor will be glad if he will enquire whether the grass cannot be utilized as a paper fibre.

5. The attention of the Inspector-General of Jails will also be directed to the use of these grasses as paper-making material, and experiments may be carried on by him in some of the jails in which paper-making has been adopted as a regular jail industry.

6. The interchange of plants and seeds has continued to be made during the year, though not to the same extent as in the preceding year. The thanks of Government are due to the gentlemen noted in paragraphs 11 and 12 of the report for the contributions received from them.

7. The Lieutenant-Governor fully concurs with Dr. King in regretting the very great loss which has been sustained by the death of Mr. Kiirz, the late Curator of the Garden.

8. The acknowledgments of the Government are due to Dr. King for his very able management of the Garden during the year.

Ordered that a copy of the Report and of the Resolution be submitted to the Government of India, in the Department of Revenue, Agriculture and Commm, for information.

Ordered further that a copy of the Report and of the Resolution be forwarded to the Conservator of Forests and to the Inspector-General of Jails and that a copy of the Resolution be forwarded to the Superintendent, Botanical Garden, for information.

By order of the Lieutenant-Governor of Bengal,

D. BARBOUR,

Offg. Secretary to the Govt. of Bengal.

(3)

No. 3385.

COPY forwarded to the Superintendent, Botanical Garden, for information.

By order of the lieutenant-Governor of Bengal.

D. BARBOUR,

Offg. Secretary to the Oovt. of Bengal

CALCUTTA,
*The 10** August 1878.*

ANNUAL REPORT OF THE ROYAL BOTANICAL GARDEN, CALCUTTA,
FOR THE YEAR 1878-79.

No. 49G, dated Eoyal Botanic Garden, Howrah, near Calcutta, the 10th July 1879,

From—GEORGE KING, ESQ., M.B., Supdt., Royal Botanic Garden, Calcutta,

To—The Secretary to the Government of Bengal, General Department.

I HAVE the honor to submit herewith the ninety-second annual report of the Royal Botanic Garden.

ANNUAL REPORT OF THE ROYAL BOTANICAL GARDEN,
CALCUTTA, FOR THE YEAR 1878-79.

1. *General condition of the Garden.*—The excessive drought of the cold season told rather severely on many of the trees recently planted out, and a good many of the more delicate species were killed by it. In spite, however, of this, the general condition of the recently planted groups is fairly good, a result in doubt largely due to the deep cultivation which has been given to the soil in which they stand. The improvements suggested in last annual report have been partly carried out, and their effect promises to be good. The plant-houses erected during the past five years continue to be very attractive to visitors, and the collection of plants grown in them has been considerably increased. Some of the stronger-growing plants are now beginning to press against the roofs, and it would be desirable, were funds available, to build a new house with a higher roof for the reception of these. As they are of species that will not succeed out of doors, the only alternative to this will be to cut them down.

2. *Improvements effected during the year.*—The great ^banyan tree, although one of the chief sights in the garden, had hitherto been accessible by no very direct path, and the long-projected improvement of connecting it with the main river entrance by a broad straight road has at last begun to be carried out. Owing to the alterations necessary to the ground by^the sides of the new road the work cannot be completed for some time yet, but it is satisfactory to have at last been able to make a beginning. A design for laying out part of the swampy ground to the north of the silk-oak avenue leading to the banyan tree has been partly carried out and this, which used to be one of the most unsightly parts of the garden, now promises to be one of the prettiest and most interesting. Several changes have been made in the roads towards the north end of the garden, by one of which a second banyan tree of very considerable size has been opened up to visitors. The alterations in the nurseries begun last year have been completed, and a good many other minor improvements have been effected in various parts of the grounds.

3. *Roads and Buildings.*—The Public Works Department have made an addition to the building in which the Herbarium, Office and Seed Department are accommodated. The new space thus provided affords much relief from the condition of chronic overcrowding which previously existed. The state of the original building to which this addition has been made is, however, far from satisfactory. The road which runs from the entrance gkftt through the mahogany avenue to the banyan tree and thence to Roxburgh's monument, is in so bad a state that nothing short of re-making it is worth consideration. Funds for this, however, have not been available. The rest of the garden roads are for the most part in good order.

* 4. *Garden Collector.*—Mr. Gk Gallatly was out collecting^ the Khasia Hills for several months and a good many living plants, chiefly orchids, were thus added to our collections. Mr. Gallatly also prepared dried plants for the Herbarium.

5. *India Rubber.*—Y&xb rubber (*Hevea Braziliensis*), of which fourteen plants were alive in the garden at the date of last report, continues to be as »disappointing as ever. Most of these fourteen plants are still alive, but they have not grown much, and it is quite clear to me that it is vain to hope that this species can ever be cultivated to profit in this part of India. Plants may be coaxed into growing in conservatories, but the species i* by far too thoroughly

tropical to withstand without protection the vicissitudes of the climate of Northern India. As I have before reported, I believe it is useless to try it anywhere in India except in the south of Burmah or the Andamans, and perhaps in Malabar. I learn from Dr. Thwaites that in the Botanic Garden at Peradeniya in Ceylon, there are plants of *Evea* of about thirty feet high, and that these are of the same age as the plants here, the highest of which is barely six feet in height. The CearA rubber (*Manihot Glaziovii*), on the other hand, promises to grow well in Calcutta. The seedlings received from Kew have thriven vigorously and some of them are now twenty feet high. The Director of the Botanic Garden in Ceylon having, at the request of the Secretary of State for India, undertaken the propagation of this species, a quantity of seeds of it were distributed by him to Indian officers during the year. Supplies were, I understand, sent to the Conservators of Forests in Burmah and Assam and to the Inspector-General of Forests for Madras. A large supply was received at this garden, and a thousand seeds were sent, at the request of the Conservator of Forests for Bengal, to the officer in charge of the forest plantation near Chittagong. The seeds received here have begun to germinate, and I expect before long to be in a position to issue supplies of seedlings for trial in different parts of the country. The plant appears to thrive very well in Upper India and, if the quality of rubber yielded by it in this country turns out to be good, its introduction may prove of much importance. Some seeds of an African species of rubber (*Landolphia*) were received towards the close of the year from Dr. Kirk, Her Majesty's Consul at Zanzibar. These did not look very promising, but possibly some of them may germinate.

6. *Ipecacuanha*.—Supplies of young plants continue to be sent out. But, as already reported, I have been obliged to give up all hope of the profitable cultivation of this drug in Northern India, the climate being unsuitable.

7. *Rheea*.—About two acres of rheea were put out to supply fresh stems to intending competitors for the Government prize for a machine for cleaning the fibre. And to all who have applied supplies have been given gratuitously.

8. *Bamboo and other paper fibres*.—In my last report I gave the result of three years' experiments in cropping bamboo in the way recommended by an English papermaker (Mr. Routledge) in a pamphlet published by him and entitled "~~Bamboo considered as a paper-making material.~~" ~~Mr. Routledge's plan from the first appeared to me to be unsuitable, but I felt bound to try it.~~ I did so, following his own printed instructions. The result showed that the yield fell far short of Mr. Routledge's calculations, and that to grow bamboos in his way in the vicinity of Calcutta as a source of paper fibre did not promise to be a profitable investment for money. The six clumps of bamboo previously reported upon have been carefully protected during the year, and to-day (10th July) I have collected from them all their succulent young shoots suitable for Mr. Routledge's process. The total weight of these shoots is one hundred and twenty pounds, or at the rate of twenty pounds per dump, and (allowing eighty dumps to the acre) at the rate of sixteen hundred pounds per acre. This result affords still further confirmation of the unsuitability of the mode of cultivation and cropping originally advocated by Mr. Routledge. I understand, however, that Mr. Routledge does not now approve of his own plan of cutting down all the shoots of a bamboo dump, but recommends that instead of this only a few shoots should be taken annually. As this is the principle on which bamboos have been cut in India from time immemorial, no experiments on its feasibility are required. The value for paper stock of the fibre contained in the succulent shoots of bamboo is a matter to be settled by practical papermakers. It is one on which I have no opinion to offer. Accepting Mr. Routledge's estimate of its value as correct, the questions that remain to be settled are whether commercial success can be obtained (1) by forming plantations of bamboo in order that a certain proportion of the succulent shoots yielded by them may be collected annually, or (2) by collecting in the forests and conveying to a paper-stock factory the immature shoots of wild bamboos, or (3) by fitting up a floating paper-stock mill and moving it about on rivers by the banks of which bamboos naturally abound, so that the expense of cultivation and of carrying the raw material may alike be obviated.

The little plantation of baobab, begun some years ago, has made but little progress during the year. The rate of growth of this tree in India appears to have been greatly over-estimated. It requires moreover an amount of cultivation and of shade while young which will, I fear, prevent its ever taking rank as a practicable source of paper fibre in this country.

In continuation of the attempt recorded in my last report to find amongst the common coarse grasses of this country some that might be useful as paper fibres, I sent to the India Office for trial samples of eight of the wiry grasses of the Orissa coast, but I regret to say that the opinion of the paper-makers in London to whom they were submitted was unfavourable to them all. I am not, however, without hope that further enquiry may bring to light one which may meet the requirements of the paper trade, and which may one day become an article of export from this country.

9. *Mahogany and other economic trees.*—Through the exertions of Sir Joseph Hooker, of the Royal Garden, Kew, a large quantity of mahogany seed was received from Jamaica. This was partly distributed and partly sown in this garden. Large numbers of seedlings have also been distributed. The Forest Department have, I am glad to say, taken up mahogany cultivation in the Government plantation near Ghittagong, and as many seedlings as possible! were sent to the Assistant Conservator in charge. The rain trees (*Pithecellobium biw^JSatian*) in this garden seeded for the second time, and large quantities both of seed and seedlings have been distributed. The sweet succulent pod of this tree is said to be an excellent food for cattle, and if it proves acceptable to the Indian bullock, the rain tree may become highly useful as a fodder plant; while its rapid growth and umbrageous habit will certainly make it a favourite for planting by road sides and near cantonments. A quantity of seed was received without name from the India Office some three years ago. This was duly sown but, the seedlings not having flowered, I was unable in my last report to identify the species. Some plants having flowered during the past year, I am now able to say that they belong to the species known familiarly as *Wilayati Babool* and botanically as *Acacia Farnesiana*. A shrub common in gardens in all parts of India. The seedlings of eucalypt (*Cermdtmà mliqna*) planted some years ago at the request of the Government of India, continue to languish and they show no signs of accommodating themselves to a climate and soil so totally different from those of which this species is a native. The plants of *Prosopis pallida* reported in last year continue to thrive, but have not yet flowered. The *Eucalypti* from Queensland give little more hope of success than the more southern species by the planting of which in the plain* of Bengal certain sanguine people hoped to abolish malaria.

10. *Interchange of living plants and seeds.*—This has gone on steadily, and during the year 22,771 plants have been issued and 9,595 have been received*. Of seeds, 3,972 packets have been issued as against 1,307 received. The chief contributors during the year have been Sir Joseph Hooker, of the Royal Garden, Kew; the Directors of the Government Gardens in Ceylon, Mauritius and of the several botanic gardens in Australia; and the Garden Collector.

11. *Herbarium.*—Very considerable additions have been made to the museum of dried plants during the past year. Chief of these is the collection of the late Mr. Dalzell, for some time conservator of Forests for the Bombay Presidency. This collection contains several forms from the west of India* which were previously but poorly represented in the garden herbarium. It also contains sets of plants gathered by well-known botanists in Scinde, Beluchistan, Arabia, Abyssinia, and the south-east of Europe*. It is to the friendly aid of Sir Joseph Hooker that the garden is indebted for this valuable addition. I have also to acknowledge a most interesting named collection of Indian plants presented by Mr. C. B. Clarke, formerly Superintendent of this garden, who is now assisting Sir Joseph Hooker in the publication at Kew of the *Flora of British India*. Valuable contributions have also been received from Mr. Duthie, Superintendent of the Botanic Garden, Seharunpore, of plants of the north-western Himalaya; from Mr. J. Sykes Gamble, Conservator of Forests, of Simla plants; from Colonel Beddome, Inspector-General of Madras Forests, of plants from the Tinniveili Hills. Collections made by myself in Upper and Central India and in Rajputana prior to my appointment

to this garden have been added to the herbarium, as also a collection made by me in the Nilgiris during my recent visit to attend the meetings of the Cinchona commission held at Ootakamund. The plants dried by Mr. Gallatly in the Khasias have been mounted, but have not been yet incorporated in the herbarium. Last, but not least, I have to acknowledge the receipt from an excellent Lepcha Collector named Dungboo, of a beautiful collection made by him in the higher parts of Sikkim and in the Chumbi and Phari valleys.

12. Mr. John Scott, who had been for several years on special duty in the Opium Department, returned to the garden in September last and was appointed Curator of the Herbarium in succession to the late Mr. Kurz. In January Mr. Biermann, Curator of the Garden, was severely wounded by a tigress which, having escaped from the menagerie of the ex-King of Oudh, swam across the river and landed in the garden. Meeting Messrs. Scott and Biermann shortly after she landed, the tigress attacked the latter and after mauling him severely about the head and leaving him lying insensible on the ground, she herself retired under a bush about twenty yards distant. And there Mr. Biermann would probably have died but for the splendid gallantry of his companion Mr. Scott, who, in full view of the tigress, approached Mr. Biermann, lifted him up and, after getting him restored to consciousness, conveyed him from the spot. Mr. Biermann's wounds were so severe that it was found necessary to grant him sick leave to Europe. Since his departure, Mr. Biermann's duties have been carried on by Mr. Scott in addition to his own. A black panther, which escaped from the same menagerie six weeks later, after spending a night in the garden, was shot by me before it had time to do any mischief. It is to be hoped that a long time may elapse before the garden be again visited by such dangerous animals.

13. The formation of a branch establishment in the Himalayas in connection with the chief garden here has for a long time been a desideratum. About fourteen years ago my predecessor, Dr. T. Anderson, did actually begin to make such a garden in conjunction with a Cinchona nursery at Rungyroom, a spot about six miles distant from Darjeeling. But Rungyroom turning out to be unsuitable for cinchona cultivation, the place was abandoned about six years after it had been opened. A recent effort to resuscitate the garden at Rungyroom was made by Mr. J. Ware Edgar, c.s.i, then Deputy Commissioner of Darjeeling, but Mr. Edgar shortly afterwards left the district and the garden began to languish. Its distance from the station of Darjeeling made Rungyroom rather an awkward site for such a garden, and the Lieutenant-Governor decided that if a garden in the Himalaya were to be maintained at all, it should be situated in or near the station. But as Government possesses no suitable land within municipal limits, the difficulty of securing a site at once arose. This difficulty was immediately solved by the munificence of Mr. William Lloyd, an old and well-known resident of Darjeeling, who with the greatest heartiness offered to make over to Government a beautiful piece of land within the station, in an accessible situation and with an excellent aspect. This land is now in process of being cleared and laid out under the superintendence of Mr. A. T. Jaffrey, late of the Cinchona plantation. The garden, which promises to be a very pretty one, has been named, in commemoration of the liberality of the donor of the site, the *Lloyd Botanical Garden*. "

14. My best acknowledgments are due to Messrs. Scott, Biermann, and Jaffrey for their earnest devotion to their respective duties.

15. The usual tabular returns of the distribution of plants and seeds are annexed.

From, whom received.	Wardian coses.	Boxes.	Number of plants.
Royal Botanic Garden, Kew, London ...	5	2	260
Botanical Garden, Mauritius ...	3	*...	92
" " Ceylon ...	...	2	91
" " Natal ...	...	6	25
" " Melbourne, Australia ...	1	...	45
" " Brisbane ...	1	...	28
" " Sydney ...	1	...	83
" " Snigapore ...	1	...	80
" " Saharunpore ...	...	i	2
Public Garden, Bombay ...	i	...	13
Eden Garden, Calcutta ...	...	...	12
Government Farm, Cawnpore ...	...	30	347
Agri-Horticultural Society, Calcutta ...	...	...	820
" " " Rangoon ...	...	1	151
" " " Madras ...	1	1	74
" " " Bangalore... ..	1	...	44
" " " Lucknow ...	...	b	74
Hon'ble the Secretary of State for India, London ...	...	1	16
Sir William Macarthur, Sydney, Australia ...	...	...	51
Deputy Surveyor-General of India, Calcutta ...	...	...	14
Colonel Hawkes, Public Garden, Rangoon ...	...	1	61
Deputy Conservator of Forests, Assam ...	...	1	4
J. S. Gamble, Esq., Forest Department ...	...	...	18
Collected by Superintendent in Sikkim... ..	...	81	778
J. Gammie, Esq., Government Cinchona Plantation ...	...	8	4
J. L. Lister, Esq., " " " " ...	...	4	127
Garden Collector, Khassya Hills ...	...	88	5,775
Messrs. Haage and Schmidt, Erfurt, Prussia ...	0	1	171
William Bull, Esq., Chelsea, London ...	1	...	61
E. H. Man, Esq., Port Blair ...	2	...	75
W. Owen, Esq., Calcutta ...	...	...	1
G. Peohe, Esq., Moulmeh ...	1	2	181
D. Xi Barr, Esq., Calcutta ...	...	...	80
Captain Badgeley, Shillong ...	...	2	202
J. Gordon, Esq., Calcutta ...	...	...	21
Dr. Pilcher, Howrah ...	...	...	20
" Cunningham, Calcutta ...	...	...	88
Major Munt, B.B., Bombay ...	...	...	86
J. Warpin, Esq., Calcutta ...	...	...	1
R. H. Cooke, Esq., Calcutta ...	...	...	16
A. Simson, Esq., " ...	...	...	15
R. Mitchell, Esq., " ...	...	2	40
J. Soott, Esq., Bankipore ...	...	2	51
Sreenath Mallee, Calcutta ...	...	...	14
Hurry " ...	...	...	64
E. J. Simpson, Esq., Chittagong ...	...	...	8
Total ...	21	mo	9,595

APPENDIX II.

Statement showing Plants sent out from 1st April 1878 to 31st March 1879.

To whom sent.	Wardian cases.	Boxes.	Number of plants.
Her Excellency the Lady Lytton ...	.....	13	364
Belvedere Garden, Calcutta ...	.....	2	891
Chief Commissioner, Andaman Islands ...	1	.....	48
Government of Fiji ...	1	.....	32
Royal Botanic Garden, Kew, London ...	8	1	162
" " " Edinburgh ...	.....	2	72
" " " Ceylon ...	.....	2	162
Botanical Garden, Jamaica ...	1	.....	40
" " Mauritius ...	8	.....	113
" " Java ...	.....	1	75
" " Singapore ...	.....	1	67
" " Saharunpore ...	.....	1	24
Public Garden, Bombay ...	.....	1	12
" " Bangalore ...	1	.....	47
" " Ootacamund ...	.....	1	41
" " Rangoon ...	1	1	251
" " Umritsir ...	.....	1	107
Government House Gardens, Calcutta ...	.....	.....	1,673
" " " Simla ...	.....	8	48
Eden Garden, Calcutta ...	.....	.....	318
Zoological Garden, Alipore, Calcutta ...	.....	.....	4,265
Government Cinchona Plantation, Darjeeling ...	.....	4	73
" " Farm, Cawnpore ...	.....	1	6
Acclimatization Society, Queensland, Australia ...	.....	1	80
Agri-Horticultural Society, Alipore, Calcutta ...	.....	.....	856
" " " Rangoon ...	1	.....	98
" " " Madras ...	2	1	97
H. B. M.'s Consul, Cairo ...	1	.....	32
Medical Officer, Levuka, Fiji ...	1	.....	36
District and Sessions Judge, Cawnpore ...	.....	1	12
The Deputy Magistrate of Baraset ...	.....	.....	20
" " Commissioner of Baraset ...	.....	.....	52
The Cantonment Magistrate of Dum-Dum ...	.....	.....	50
Assistant Commissary-General, Calcutta ...	.....	.....	110
Officiating Garrison Quarter-master, Calcutta ...	.....	.....	174
Port Commissioners, Calcutta ...	.....	.....	116
Municipality of Howrah, " ...	.....	.....	290
Assistant Conservator of Forests, Assam ...	.....	2	50
Divisional Engineer, Ferozepore ...	.....	.....	127
Executive Engineer, Buxar ...	.....	2	1,000
" " Northern Embankment, Calcutta ...	.....	3	1,600
Northern Bengal State Railway ...	.....	48	1,300
Eastern Bengal Railway Company, Howrah ...	.....	.....	200
Messrs. Haage and Schmidt, Erfurt, Prussia ...	.....	2	139
" " Mackinnon, Mackenzie & Co., Calcutta ...	.....	1	42
" " Balmer, Lawrie & Co., Calcutta ...	.....	1	100
" " Mackenzie, Lyall & Co., Calcutta ...	.....	1	26
" " Lazarus & Co., Calcutta ...	.....	.....	50
" " Begg, Dunlop & Co., Calcutta... ..	.....	8	40
Dr. Barr, Garden Reach, Calcutta ...	.....	.....	150
J. Coles Hardinge, Esq., Rangoon ...	1	.....	25
Howrah Hospital ...	.....	.....	12
Reformatory School, Alipore, Calcutta ...	.....	.....	24
The Principal of Rajshahye College ...	.....	5	111
" " La Martinire School, Calcutta ...	.....	.....	100
Male Orphanage School, Calcutta ...	.....	.....	145
Sir William MacArthur, Sydney ...	1	1	79
Sir S. Baker, Newton Abbott, Devonshire ...	.....	1	62
The Hon*ble H. Cockerell, Darjeeling ...	.....	2	86
J. Humbert, Esq., London, England ...	.....	8	10
A. Dickens, Esq., Manchester, England ...	.....	1	62
Miss Sanderson Cockermouth, Cumberland, England ...	.....	1	62
Count A. deVilliers, Neulembach, Austria ...	1	.....	27
G. Peche, Esq., Moulmein ...	1	.....	20
E. H. Man, Esq., Port Blair ...	1	.....	24
Dr. Gordon, Tezpor, Upper Assam ...	.....	1	20
C. Kane, Esq., Assam ...	.....	.....	22
Baboo K. C. Chatterjea, Mnndulghat ...	.....	1	18
Major W. F. Badgeley, Shillong ...	.....	4	58

APPENDIX II—continued.

To whom sent*.	Tardian cases.	Boxes.	Number of plants.
Dr. H. B. Purves, Darjeeling	2	59	
Colonel F. S. Stanton, Darjeeling	3	51	
J. Curtis, Esq., Tukvar Estate, Darjeeling	2	21	
The Maharajah of Durbhunga	12	296	
Baboo G. D. Banerjee, Bhagulpore	4	83	
„ S. P. Boy, Bhowanipore	1	17	
„ B. D. Sen, Berhampore	1	6	
A. Sanderson, Esq., Jubbulpore	1	4	
B. Bradshaw, Esq., „	6	112	
W. B. Darbey, Esq., Julpigoree	1	22	
J. B. Groves, Esq., „	5	140	
J. Scott, Esq., Bankipore	1	18	
J. Crowdy, Esq., Bhogobanpore	1	6	
B. G. Griffith, Esq., Dinapore	3	68	
J. Bidley, Esq., Lucknow	2	24	
Dr. T. Beaumont, Indore	1	14	
B. Man, Esq., Candray	1	5	
Major Angelo, Chunar	12	262	
The Chaplain of Chunar	3	64	
F. F. Peppe, Esq., Arrah	2	34	
J. F. Sparke, Esq., Boorkee	1	24	
Colonel Cadell, C.B., Madras	1	31	
Dr. W. D. Stewart, Cuttack	3	26	
Prince Noorooddeen Khan, Bussapuglah	1	5	
Bussa Jail, 24-Pergunnahs	1	78	
Dr. Wilson, Purulia	1	13	
Bev. W. H. Bray, Calcutta	1	600	
Baboo W. C. Sen, Cooch Behar	1	8	
„ Z. Rohoman, Moorahedabad	14	299	
Mrs. Grant, Beerbhoom	1	18	
Dr. G. Watt, Hooghly	1	82	
Baboo C. L. Boy, Chandernagore	1	82	
Rajah N. Mullick, Calcutta	1	12	
Baboo H. M. Mookerjee, Seebpore	1	44	
J. Madge, Esq., Calcutta	1	14	
C. Gosting, Esq., „	1	7	
F. Owen, Esq., „	1	13	
Dr. Tonnerre	2	103	
D. L. Barr, Esq., Calcutta	1	47	
Fort William	1	44	
W. Westfield, Esq., Calcutta	1	25	
Inspector-General of Prisons, Calcutta...	1	63	
Hurry Mallee, a native nurseryman, Calcutta	1	19	
Baboo Soodhangsoo Boy, Calcutta	1	50	
„ P. C. Ghosha	1	8	
W. Davis, Esq., Howrah	1	1	
Baboo H. T. Biswas, Calcutta	1	4	
„ G. C. Ghose, „	1	4	
„ S. N. Boy, „	1	24	
A. Simson, Esq., „	1	40	
Sergeant Russell, Hastings	1	17	
Baboo S. C. Ghose, Calcutta	1	1	
Captain Collins, „	1	7	
Baboo N. C. Chatterjee, Calcutta	1	100	
Narain Mallee	1	1	
S. N. Dass, a native nurseryman, Calcutta	1	206	
Amur My Mallee, thana Makoa	1	1	
Baboo Bamchurn, Calcutta	1	1	
„ T. N. Banerjee	1	46	
G. Keith, Esq., Calcutta	1	1	
Dr. S. C. Mackenzie, Calcutta	1	18	
E. A. D'Silva, Esq., „	1	17	
A. Paul, Esq., „	1	1	
J. Wilkinson, Esq., „	1	7	
Abdool Bohoman Khan, „	1	46	
Baboo B. Boy, „	1	23	
Baboo S. C. Chatterjee	1	1	
Rajah B. C. Boy, Calcutta	1	42	
T. Evans, Esq., „	1	7	
Baboo M. Hindoosthani, Calcutta	1	60	
Secretary, Beading Booms, Seebpore	1	34	

APPENDIX II—continued.

To whom sent.	Wardian oases.	Boxes.	Number of plants.
S. H. Apar, Esq., Calcutta	31
F. Barry, Esq.,	200
P. Hardinge, Esq., Bangoon	...	2	46
Bahoo D. N. Seal, Calcutta	14
J. B. Adels, Esq., "	4
The Principal, Government School of Art, Calcutta	19
Baboo C. Dutt, Calcutta...	15
Dr. Cunningham, "	9
P. M. Lowther, Esq., "	42
Baboo G. C. Datta, Seebpore	68
B. S. Mitchell, Esq., Calcutta	6
G. D. Oswell, Esq., Bishop's College	8
G. N. Tagore, Esq., Calcutta	26
Oapt. G. Lamb, "	60
Baboo Sagur Dutt, "	13
J. Wood, Esq., "	8
Baboo H. C. Sen, "	47
Major St. John, "	250
S. M. Paul, Esq., "	103
W. Ainsworth, Esq., Seebpore	18
Baboo P. C. Sein, "	25
" J. Bhutta, Bishop's College	5
" A. C. Mullick, Calcutta	50
" S. K. Banerjea, "	7
" K. L. Mookerjea, Seebpore	68
H. Johnson, Esq., Calcutta	65
C. Boss, Esq., Seebpore	18
Baboo T. C. Mookerjea, Seebpore	12
T. Watson, Esq., Calcutta	24
Baboo S. Mobarick, "	6
Badul Khan, Sirdar, Thamwakoa	7
Baboo S. P. Chatterjea, Calcutta	66
Bajah B. C. Dutt, "	7
Baboo A. C. Banerjea, Seebpore	8
" K. N. Boy, Calcutta	17
" Hurrymohun Dass, Calcutta	10
O. T. Buekland, Esq., Calcutta	25
The ex-King of Oude, Garden Beach, Calcutta	25
Baboo K. P. Sookul, Nattoro	83
W. H. Irvine, Esq., Calcutta	...	g	80
Baboo Hurree C. Sen, "	47
" S. N. Boy, "	67
B. Cooke, Esq., "	11
E. G. Chester, Esq., Forest Department, Chittagong	...	26	1,040
Divisional Engineer, Barraset	4
R. Groundwater, Esq., Upper Assam	...	0	148
Baboo J. S. Shaw, Calcutta	7
S. N. Paul, Esq., "	102
Baboo N. C. Dutt	4
" O. K. Dutt, Bally	16
" O. C. Mullick, Calcutta	50
J. Sooroondro Nath, "	5
" S. G. Ghose	1
G. P. Oarmichael, Esq., Port William	26
Total	24	287	22,771

APPENDIX III.

Statement of Seeds received from 1st April 1878 to 31st March 1879.

From whom.				Number of parcels or packages.
The Right Hon'ble the Secretary of State for India, London ...	...	...	...	3
Conservator of Forests, Punjab ...	...	...	...	5
" " Bengal ...	...	...	...	10
" " Kumaon ...	...	...	...	2
" " Assam ...	...	...	...	2
" " Berar ...	...	...	...	3
" " British- Burmah ...	...	...	...	4
" " Jounsur, N. W. P. ...	...	...	...	1
Baron Von Muller, F.B.S., Melbourne, Australia ...	...	...	...	91
Sir Joseph Hooker, E.C.B.I., P.B.S., Boyal Gardens, Kew, London ...	...	...	...	16
Dr. Begel, Imperial Garden, St. Petersburg, Russia ...	...	...	...	4
Botanic Garden, Brisbane, Australia ...	...	...	...	15
" " Melbourne, " ...	...	...	...	50
" " Adelaide, " ...	...	...	...	82
" " Tasmania " ...	...	...	...	3
" " Mauritius ...	...	...	...	17
" " Jamaica ...	...	...	...	14
" " Ceylon ...	...	...	...	11
" " Java ...	...	...	...	1
" " Saharunpore ...	...	...	...	8
Public Garden, Bangalore ...	...	...	...	18
" " Poona ...	...	...	...	2
" " Bangoon ...	...	...	...	2
Agricultural and Horticultural Society, Calcutta ...	...	...	...	15
" " " " Lahore ...	...	...	...	50
" " " " Lucknow ...	...	...	...	9
" " " " Bangalore ...	...	...	...	21
" " " " Rangoon ...	...	...	...	1
Queensland Acclimatization Society, Australia ...	...	...	...	25
Collected by the Superintendent ...	...	...	...	27
" " Garden Collector ...	...	...	...	63
J. Scott, Esq., Bankipore ...	...	...	...	3
J. L. Lister, Esq., Government Cinchona Plantation ...	...	...	...	78
A. T. Jaffrey, Esq., Darjeeling ...	...	...	...	193
Messrs. Haage and Schmidt, Erfurt, Prussia ...	...	...	...	3
" Jules de Cock, Ghent, Belgium ...	...	...	...	78
" Ahmuty & Co., Calcutta ...	...	...	...	1
" Stanley Price & Co., Calcutta... ..	...	...	...	6
E. H. Man, Esq., Port Blair ...	...	...	...	243
Dr. Hance, Hong-Kong ...	...	...	...	3
" Scully, Nepal ...	...	...	...	1
S. G. Sutherland, Esq., Calcutta ...	...	...	...	1
Dr. Cunningham ...	...	...	...	9
E. Errington, Esq., Barrackpore Park... ..	...	...	...	1
H. H. Prince Rama Varma, Travancore ...	...	...	...	1
Mrs. G. Battey, Calcutta... ..	...	...	...	1
Rev. C. A. Wakes ...	...	...	...	1
Collected in Sunderbunds by Garden Collector ...	...	...	...	1
" Khassya Hills ...	...	...	...	48
Brought in Bazar ...	...	...	...	51
J. Gammie, Esq., Government Cinchona Plantation ...	...	...	...	3
Government Botanist, Melbourne, Australia ...	...	...	...	6
Total				1,307

APPENDIX IV.

Statement showing Seeds despatched from 1st April 1878 to 31st March 1879.

To whom supplied.						Number of parcels or packages.
Sir Joseph Hooker, K.C.S.I., P.B.S., &c., Director, Royal Botanical Gardens, Kew, London	...	...	...	...	...	208
Dr. Regel, Imperial Garden, St. Petersburg^	...	...	...	...	...	71
Professor Balfour, Royal Gardens, Edinburgh	...	...	...	...	...	76
Royal Botanic Garden, Ceylon	...	...	...	...	...	21
Botanic Garden, Melbourne, Australia	...	...	...	...	...	3
" 99 Brisbane, Queensland, Australia	...	...	...	...	...	5
" 91 Adelaide, South Australia	...	...	...	...	...	4
" 99 Sydney, Australia	...	...	...	...	...	12
" 99 Jamaica	...	...	...	...	...	4
" " Natal, South Africa	...	...	...	...	...	4
" " Mauritius	...	...	...	...	...	9
99 Buitenzorg, Java	...	...	...	...	...	11
99 Gunneskhund, Poona	...	...	...	...	...	2
91 99 Saharunpore	...	...	...	...	...	86
Lloyd Botanical Garden, Darjeeling	...	...	...	...	...	709
Public Garden, Murree	...	...	...	...	...	1
" 99 Bangalore	...	...	...	...	...	4
" 99 Rangoon	...	...	...	...	...	32
" " Bombay	...	...	...	...	...	7
Baron Von Muller, Melbourne, Australia	...	...	...	...	...	3
Sir William Macarthur, Sydney	...	...	...	...	...	2
Secretary, Acclimatization Society, Queensland, Australia	...	...	...	...	...	10
Agri-Horticultural Society, Calcutta	...	...	...	...	...	95
99 " Madras	...	...	...	...	...	5
99 99 Lahore	...	...	...	...	...	63
99 99 Lucknow	...	...	...	...	...	5
99 99 Rangoon	...	...	...	...	...	3
Messrs. Van Houtte, Royal Nursery, Ghent, Belgium	...	...	...	...	...	74
99 A. Van Gee* &c, Nurseryman, Ghent, Belgium	...	...	...	...	...	1
99 Jules de Cock, Ghent, Belgium	...	...	...	...	...	1
99 Haage and Schmidt, Erfurt, Prussia	...	...	...	...	...	160
99 Keys and Co., Hampstead, London	...	...	...	...	...	68
99 Bull and Co., Chelsea, London	...	...	...	...	...	68
99 Mackinnon, Mackenzie and Co., Calcutta...	...	...	...	...	...	2
99 Williamson, Magor and Co., Calcutta	...	...	...	...	...	1
99 Stanley, Price and Co., Ballygunge, Calcutta	...	...	...	...	...	10
99 Benj. Reid and Co., Aberdeen	...	...	...	...	...	1
H. B. Hyde, Esq., Broadway, New York	...	...	...	...	...	58
Conservator of Forests, Central Provinces	...	...	...	...	...	5
" " Punjab	...	...	...	...	...	18
Deputy Conservator of Forests, Assam	...	...	...	...	...	4
Additional " " British Burmah	...	...	...	...	...	43
Assistant " " Dehra Dun	...	...	...	...	...	1
99 99 Raneekhet	...	...	...	...	...	6
Superintendent, Government Farm, Cawnpore	...	...	...	...	...	3
99 99 " Bangalore	...	...	...	...	...	4
District Engineer, Baraich	...	...	...	...	...	100
" 19 East Indian Railway, Howrah	...	...	...	...	...	1
Executive " Sone	...	...	...	...	...	18
" 99 Etah	...	...	...	...	...	73
" " Darjeeling	...	...	...	...	...	1
Government House Garden, Calcutta	...	...	...	...	...	2
Political Agent of Kattywar	...	...	...	...	...	60
Magistrate of 24-Pergunnahs, Alipore	...	...	...	...	...	1
" Neemuch	...	...	...	...	...	65
" Dinagepore	...	...	...	...	...	9
" " Catwa	...	...	...	...	...	1
Deputy Commissioner of Murreo	...	...	...	...	...	1
Consul-General for Italy, Calcutta	...	...	...	...	...	57
99 99 for the German Empire	...	...	...	...	...	80
The Earl of Auckland, England	...	...	...	...	...	60
Sir H. Daly, C.B., Indore	...	...	...	...	...	15
General Stewart, Kandahar	...	...	...	...	...	52
Major Badgeley, Shillong	...	...	...	...	...	67
Prince Rama Varma, of Travancore	...	...	...	...	...	12
The Thakore of Gouridhur	...	...	...	...	...	60
" " of Virpur	...	...	...	...	...	60
Motec Singh Rao, Bahadoor, of Joudpore	...	...	...	...	...	66
G. Takeda, Japanese Mission	...	...	...	...	...	13
Government of Mauritius	...	...	...	...	...	6
Government School, Prome	...	...	...	...	...	67

APPENDIX IV.—*continued.*

To whom supplied.	Number of parcels or packages.
J. Kennedy, Esq., Darjeeling	5
Major Miller, Mhow	73
W. J. Westfield, Esq., Calcutta	2
Baboo N. G. Chatterjea, Nursery, Paikparrah	2
W. Jennings, Esq., Calcutta	13
Mrs. Young, Viziniptam	1
E. H. Man, Esq., Port Blair	7
G. Peppe, Esq., Arrah	1
J. D. Ward, Esq., c.s., Purneah	1
District Judge, Dacca	1
Nawab Abdool Gunny, c.s.i., Dacca	1
J. Munro, Esq., Darjeeling	22
Dr. W. Cattell, Rawal Pindie	7
J. Gammie, Esq., Government Cinchona Plantation	61
Dr. Garden, Assam	40
J. B. Hennessey, Esq., Mussourio	1
J. B. Smart, Esq., Hazareebagh	1
Major Angelo, Chunar	1
Dr. Barry, Calcutta	24
H. Beverly, Esq., Calcutta	38
J. Perrin, Esq., Berhampore	72
J. H. Prinsep, Esq., Cawnpore	6
Mrs. Diago, Chandernagore	25
Secretary, Government of Bengal	1
Head-master, Rajshahye College	14
Mrs. Roscoe, Shibpore	50
Dr. Bennett, Mentone, Italy	64
G. H. Jameson, Esq., Shahpore	2
The Principal Storekeeper, Northern Bengal Railway, Sara	16
J. N. Wood, Esq., Calcutta	1
Col. Ramchunder, of Gwalior	72
Baboo B. L. Ghose, Lahore	50
R. M. Michell, Esq., Calcutta	1
Dr. Dickie, Aberdeen, Scotland	63
Rao Baket Sing, Oodeypore	61
C. T. Buckland, Esq., Calcutta	6
Dr. Brown, Medical College, Lahore	57
C. Ross, Esq., Seebpore	50
Reformatory Grounds, Calcutta	13
L. Baily, Esq., Dehra Dun	1
Commissioner of Arracan	4
Collector of Cuttack	1
Cantonment Magistrate, Morar	34
Messrs. C. Dinshaw Brothers, Bombay	1
Manager, Dook Da Boo Tea Estate, Darjeeling	40
Executive Engineer, Mozufferpur	5
W. Jennings, Esq., Calcutta	13
G. Mann, Esq., Shillong	1
Mrs. B. NeiU	1
X Parsons, Esq., Musoorie	1
Dr. Sutherland, Presidency Surgeon, Aboo, Rajpootana	54
E. Warduper, Esq., ship <i>Lady Lillbome</i>	1
Total	3,972

SXGTA2TOIAX* XXDPARTMIBCTT.

AGRICULTURE.

OALOUTTA, THB 22NO AUGUST 1879.

RESOLUTION.

READ—

Letter from the Superintendent of the Boyal Botanical Garden, Oaloutta, No. 49Q-, dated 10th July 1879, submitting the Annual Report of the Garden for 1878-79.

Read also—*

The Government Resolution on the Report for 1877-76.

NOTWITHSTANDING the excessive drought of the cold season, which killed a number of young plants, it is satisfactory to find that the condition of the recently planted groups is fairly good. The improvements proposed in the previous year's report have been partly carried out. The new plant-houses have received considerable additions to the collection of plants grown therein, and continue to attract visitors. A broad straight road from the river entrance - ghfit to the great banian tree on the west, the want of -yhich was long felt, was commenced during the year under review. The low swampy gibnnd in the vicinity of the banian tree, which has hitherto been one of the most unsightly parts of the garden, has been partly laid out, and, it is hoped th*t, wjien the design has been fully carried out, it will present a greatl^improved appearance. Changes have also been made in the roads towards the north of the garden, which have had the effect of opening to view a second banian tree of very large size. Many other minor improvements have been effected in various parts of the garden.

2. As ordered last year, the building in which the Herbarium and office are placed has been enlarged and improved by the Public Works Department, so as to afford sufficient space to prevent the over-crowding which has hitherto, existed. *

3. The experiments which have been going on for some years past in cultivating in the garden certain special plants are again found to have been mostly unsuccessful. It is now decisively shown that *the pard* rubber will not now in Calcutta. It is therefore useless continuing the experiment any further. The .ceard rubber, however, promises to thrive, and Dr. Bång is in hopes of being able before long to supply seedlings for trial in various part? of the country.

Ipecacuanha cannot be grown to profit, though supplies of young plants continue to be issued. *Rhea* will not thrive as a crop, but two acres have been put wider plant to supply fresh stems to intending competitors for the Government prize ior a machine for clearing the fibre.

A large quantity of *mahogany* seed was received from Jamaica, and was partly distributed and partly sown in the garden. The Forest Department have commenced mahogany cultivation in Ghittagong, and many seedlings have been s6nt to the A.S. Conservator there.

4. The rain trees of which a quantity of seed was received from the India' Office three years ago, flowered during the year and large quantities of sqpd and seedlings have been distributed. The sweet succulent pod of this tree is an excellent food for cattle, and it may become highly useful as a fodder plant.

The *Carol* and the *Eucalypti* have been again found to be unståted to the climate of Bengal. The plants of *Prosopis pallida* continue to thrive, but have not yet flowered.

5. The further experience gained during the year in the process of cropping clumps of *bamboos* in the way recommended by Mr. Routledge has confirmed Dr. King in the opinion previously formed of the unsuitability of the plan originally proposed by Mr. Routledge. Mr. Routledge, however, is understood to have changed his plan, and to have recommended that instead of cutting down all the shoots of a bamboo clump only a few shoots should be annually taken from each clump. Dr. King says that this is the principle on which bamboos have been cut in India from time immemorial, and that no experiments on its feasibility are required. The value of the fibre contained in the succulent shoots of bamboo as a material for the manufacture of paper can only be tested by practical paper-makers. Even, accepting Mr. Routledge's estimate of its value, the questions which, Dr. King says, should be settled are whether commercial success can be obtained—(1) by forming plantations of bamboos for the collection of succulent shoots; (2) by collecting the immature shoots of wild bamboos in the forests, and carrying them to a paper factory, or (3) by fitting up a floating paper-stock mill and moving it about on rivers by the banks of which bamboos naturally abound.

The *baobab* cannot be grown in this country so as to be a source of paper fibre. The samples of wiry grasses of the Orissa coast which Dr. King sent to the India Office have been unfavourably reported on by the paper-makers in London, to whom they were submitted for opinion. Dr. Bang does not seem to have yet examined the grass which grows on the banks of the Adjai and Damoodah, as was suggested to him in the Government Resolutions on his Reports for the two previous years. As he is making further investigations on the subject, the Lieutenant-Governor will be glad to hear the result of his enquiry into the capability of the above grass to produce a paper fibre.

6. The interchange of plants and seeds has gone on steadily. The thanks of Government are due to Sir Joseph Hooker, of the Royal Garden, Kew, to the directors of the gardens in Ceylon, Mauritius and Australia, as well as to the garden collector, for the contributions received from them during the year.

7. The thanks of Government are also due to the gentlemen named in paragraph 11 of the 'Report for the large and valuable collections of dried plants presented by them to the Herbariums.

8. The branch Botanical Garden which was established at Rangaroon some years ago not being found a success, owing principally to its distance from Darjeeling, a garden has lately been opened at the station of Darjeeling, where a suitable piece of land has been presented for the purpose by Mr. W. Lloyd, an old and well-known resident of the place. This land is being cleared and laid out under the superintendence of Mr. Jaffary, late of the cinchona plantation.

9. The Lieutenant-Governor observes that it has not been the practice hitherto in these annual reports to state the expenditure incurred during the year in maintaining the gardens. In future years a statement should be appended showing the expenditure incurred in the Calcutta and in the Darjeeling gardens separately, also the receipts if any.

10. The lieutenant-Governor thanks Dr. King and his staff for their useful labours during the year.

ORDER.—Ordered, that a copy of the Report and of the Resolution be submitted to the Government of India, in the Department of Home, Revenue and Agriculture for information.

Ordered, further, that a copy of the Resolution be forwarded to the Conservator of Forests, and a copy of the Resolution to the Superintendent, Botanical Garden, for information.

By order of the Lieutenant-Governor of Bengal,

H. L. HARRISON,

Offg. Secretary to the Government of Bengal.

(3)

No. 216.

COPT forwarded to the Superintendent, Botanical Garden, for information.

By order of the Lieutenant-Governor of Bengal,

H. L. HARBISON,

Offg. Secretary to the Govt of Bengal.

CALCUTTA, •

The 21st August 1879.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN, CALCUTTA,
FOR THE YEAR 1879-80.

No. 42G- of 1880—dated Royal Botanic Garden, Howrah, the 14th July 1880.

From—GEORGE KING, ESQ., M.B., Supdt., Royal Botanic Garden, Calcutta,

To—The Secretary to the Government of Bengal, General Department,

I HAVE the honor herewith to submit the ninety-third annual report of the Royal Botanic Garden.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN,
CALCUTTA, FOR THE YEAR 1879-80.

CONSIDERABLE progress has been made during the year in carrying out the programme of remodelling the garden which was begun some years ago. The ornamental water near the Howrah gate has been extended so as to get soil to fill up some very low ground by the side of the riverbank road; an unsightly rubbish hole near Wallich's mount has been filled up; the land occupied by the fine collection of ratan palms has been heightened; and various minor improvements have been effected in the palmetum; the straight avenue leading from the main river entrance to the great banyan tree has been finished; the ornamental water to the north of this avenue has also been completed; and a large area of ground which used to be little better than a swamp, has been raised in level and is now ready to be planted out with groups of trees. A fine avenue of *Albizzia paludosa*, designed and planted by my predecessors, the late Dr. Anderson and Mr. C. B. Clarke, has been paved. This avenue has also been connected with some of the main roads of the garden and will one day be one of its chief ornaments. The peculiar habit of this beautiful tree makes it especially well adapted for avenue planting, and its selection by my predecessors was a happy one. It is, however, rather a slow-growing species, and some years must elapse before this avenue acquires its full beauty. Many new groups of trees and shrubs have been planted out during the year, and the flower-beds near the conservatories have to a large extent been replanted. The two large conservatories, built in 1875 and 1877, continue to be most successful. Further experience has only confirmed my opinion that houses of their structure are by far the best adapted for growing delicate tropical plants in the somewhat trying and not thoroughly tropical climate of Calcutta. The good health of the plants in these conservatories is not, however, wholly due to the suitability of these structures, but also partly to the fact that the plants are in the ground and not in pots. About three-fourths of the garden have now been laid out anew; the level of the soil has been raised; ornamental water has been formed; trees have been planted in groups; new roads and paths have been formed; and old ones have been repaired. The remaining fourth still remains untouched, but, if funds be granted, I hope within the next two years to finish this also. When all the additional work of laying out has been finished, it will be easy to keep the whole in a state of order and efficiency. During the past five years half the energy of the staff and a considerable portion of the annual grant have been devoted to construction rather than to maintenance.

2. *Rheea*.—Two years ago about two acres of land were planted with *rheea*, in order that intending competitors for the Government of India prize might be supplied with fibre for their preliminary experiments. A considerable quantity of green atoms was supplied to various applicants prior to the competition at Seharunpore, and about 65 maunds were sent to Seharunpore during the trials to supplement the supply from the garden there. Having now had two years' experience in growing *rheea*, I begin to doubt whether, in this part of India at least, *rheea* fibre is ever likely to be produced very cheaply. An efficient machine for cleaning the fibre will, no doubt, be invented sooner or later; but the cost of the raw material is greater than most people

imagine. It is true that the rhea plant is a perennial, and that the same individuals yield shoots which may be cut several times a year. On the other hand, it is an exhausting crop, and it is quite clear that, in order to secure even a moderate yield of stems from four to six feet long, deep hoeing and manuring between the plants and (in the dry season) irrigation are absolutely necessary. It is generally supposed that, at least, three crops a year can easily be got from rhea plants. This is not my experience. During the cold weather rhea hardly grows at all here, and the stems which can be got at the end of that season are so short and woody as to be, to a great extent, useless. If three crops of good stem are to be taken, they must be got during the hot weather and rains, and I think it will be found that, in this part of India at any rate, it is only on good well-cultivated land, that more than two cuttings of really good stem can be counted on.

3. *Paper materials.*—A report has been received on the suitability as paper fibres of certain coarse grasses from the Orissa coast sent by me to England for report more than a year ago. These grasses were got for me by the Collector of Orissa, but having been sent to me as bundles of dried leaves and stems from which the flowering heads had been removed, I was unable to identify the species botanically, and was obliged to send the samples to England under their vernacular names. The samples, having been boiled in ley in the usual way, were submitted to the following process, of which I quote my correspondent's account together with his tabular statement of the result: "After being boiled the ley was poured off and the mass thrown on a wire sieve and water run through it. The fibre was then dried and weighed on a steam plate as fast as possible, and the column marked *percentage after boiling* is the result. The fibre was then exposed to the atmosphere until it had absorbed as much moisture as it would and was reweighed, giving column No. 2 (of course the increase varied considerably according to the moisture in the air, a very variable factor in this climate). It was then taken and washed and broken in or reduced to pulp in a miniature engine of the usual type for the purpose, collected on a fine sieve, carefully dried on a hot plate as before, and weighed, giving column No. 3 marked *percentage after washing*. It was then exposed to the air as before, the result being given in column No. 4. In the two lower lines I have given the highest and lowest yield of about 25 trials of different kinds of Esparto for comparison with the Orissa grasses:

		Percentage after boiling.	On exposure to air.	Percentage after trashing.	On exposure to air.
No. 4, Bena grass...	...	48.9	62.8	40.2	43.9
„ 15, Sargana	...	48.7	46.7	36.2	39.0
„ 14, Ranikharua	...	48.6	52.9	42.3	46.1
„ 5, Sara	...	52.5	57.5	.....	47.4
„ 18, Hens-ati	...	42.4	45.9	33.6	37.1
„ 11, Tiansi	...	49.6	55	35.9	39.0
Esparto	...	55.5	59.1	43.9	47.2
	...	45.6	49.1	36.3	39.5

"Numbers 11 and 14 are the best of these grasses, and if they can be had in large quantities and at the price of esparto, they might be worth trying on a large scale."

I have asked the Commissioner of Orissa to supply me at the end of the rainy season with a few hundredweights of the two grasses most favourably reported on, and I propose to send these larger samples to England for further trial.

I regret that, owing to my own rather lengthened absence at Java, and to the absence of Mr. ^ Biermann on furlough during the greater part of the year under review, it was impossible for me either to go myself or to send Mr. Scott to the banks of the Adjai and Damoodah rivers to examine the long grasses growing there, and to which my attention was directed in the resolution on my last annual report. During the current year I hope to be able either to go myself or to send one of my European assistants.

^h*Economic plants*—*k* few seedling trees of the carob (*Ceratonia siliqua*) raised from seed, sent by the Government of India in 1877, continue to thrive but poorly. I have, as stated in former reports, no hope that this species will ever answer in a climate so utterly unsuited to it as that of Lower Bengal. The tree fruits in the Punjab and grows fairly well in the Seharunpore Botanical Garden. Further trials of it should, in my opinion, therefore be confined to the drier parts of the Upper Provinces,

The trees in the small Baobab plantation continue to grow steadily. I intend, when the plants become a little larger, to carry out Sir J. Hooker's suggestions of coppicing them so as to find out whether In Bengal reproduction by coppice can be depended on with this species.

The whole of the eight species of *Eucalyptus* marginally noted, of which the Government of India sent seed in 1877, have failed from the same cause, namely, damping-off of the seedlings during the rainy season. It appears to me a pure waste of time to go on trying to coax *Eucalyptus* to grow in a locality so manifestly unsuited to it in every way as the Gangetic delta.

Eucalyptus hemiphysa.
 " *hamatoma.*
 " *paniculata.*
 " *viduorophila.*
 " *longifolia.*
 " *tereticornis.*
 " *holoxylon.*
 " *indoxylon.*

Of the three India rubber yielding species of which seeds were collected in South America at the instance of the Secretary of State for India, living plants of only two, viz. the Pard and Cear rubber, were ever received in this garden. The Pard rubber (*Hevea Braziliensis*) has proved quite unsuited to this part of India, and is not likely to be accommodated with a suitable home in any place so far from the equator as Calcutta. The Cear rubber tree (*Manihot Glaziovii*) has, on the other hand, proved very hardy in Calcutta. Our first-received plants looked, for some time after their arrival, weak and lanky, and I was for some time not very hopeful about them. Further experience showed that these appearances had been the result of coddling, and that, when freely exposed to sun and rain, this *Manihot* is a wonderfully hardy plant, capable of standing the roughest treatment, easily grown, and readily propagated. If its rubber turns out really good, the cultivation of this species will, no doubt, be taken up by tea-planters whose gardens are on the plains, and by indigo-planters as adjuncts to their other cultivation. In expectation of large demands for young plants and seeds, I have made a Cear plantation on a suitable piece of ground on the outskirts of the garden.

There are in the garden some plants of *Prosopis pubescens*, a plant of which the pod yields a good tanning material. These were raised from seed sent by the Government of India four years ago : they continue to grow slowly, and have not as yet flowered. Many years ago the cultivation of the tree yielding the well-known divi-divi tan (*Caesalpinia eoriararia*) was undertaken in this garden. There are now many large divi-divi trees here. They yield pods freely every year, and the seeds are regularly distributed gratis to all applicants.

The demand for seed and seedlings of the guango or rain-tree (*Pithecolobium Saman*) continues very great. As yet seed is yielded to a very small extent by the few trees of this species that exist near Calcutta,* and I have been obliged to indent on the Government of Jamaica for supplies. This wonderful tree grows faster than any hitherto introduced into Bengal with the single exception of the *Casuarina*. It gives a beautiful shade and yields a pod with a sweet pulp which is greedily eaten by cattle. For avenues, cantonment squares and situations where dense shade is wanted no tree is more suitable than this.

The demand for mahogany still continues, and I am able to meet it, as annual supplies of seed are now received through Kew from the West Indies.

The cultivation of vanilla appears again to be attracting some attention, and during the year a considerable number of young plants have been supplied to applicants.

Some years ago a fodder plant under the name of *Symphytum aspernum* (since identified by Sir Joseph Hooker as *S. peregrinum*) was largely advertised as in the highest degree suitable for the plains of India, and interesting accounts were given (by anticipation) of the well-fed mutton and fat beef, not to mention the rich milk and butter, that were to follow the introduction

of this interesting species. *Symphytum* being a genus inhabiting temperate climates, and the home of this particular species being given as the mountains of the Caucasus, it seemed from the first not a little doubtful whether the plant would thrive on the hot plains of India, and the full realization of these pleasant anticipations always seemed a little hopeless. Roots of the plant were sent to me for trial here and for distribution to correspondents, and I have now to report that, wherever tried on the plains, *Symphytum* has been a failure, and that its success has been but small even at the Himalayan stations where it has been planted.

5. *Interchange of seeds and living plants.*—During the year, 59 Wardian cases of plants have been sent to different parts of the world, and 46 have been received. This is a larger number than has ever before been reached in one year, and affords evidence that, in the distribution of delicate and valuable exotic plants, the usefulness of the garden is being increased. Besides plants in Wardian cases, a large number were received and sent out in open boxes and in pots, the actual figures being, of plants received 6,055, and of plants given out 19,447.

Interchange of seeds has been particularly active during the year, 2,448 packets having been received and 6,457 having been distributed. Amongst the chief donors of plants and seeds were the Directors of the Botanic Gardens of Key, St. Petersburg, Buitenzorg (in Java), Antibes (in France), and of the Botanic Gardens in the British Colonies. Intercourse has also been kept up with all the public gardens in India.

To Mr. Bull of Chelsea, Messrs. Haage and Schmidt of Erfurt, M. Leboeuf of Argenteuil, M. L. VanHoutte of Ghent, and to several other European nurserymen, the garden is indebted for seeds and plants. Many valuable parcels of seeds were also received from officers of the Indian Forest Department. During my recent tour in Java I was able to collect a considerable quantity of both plants and seeds, most of which have done well.

6. *Herbarium.*—Considerable additions have been made to the collection of dried plants. Amongst the chief donors have been Mr. Brandis, F.R.S., Inspector-General of Forests, from whom some interesting specimens from Rajputana and Assam were received; Mr. J. Sykes Gamble, Conservator of Forests for Bengal, who has supplemented his contributions of previous years by a large number of species collected by himself near Simla and in Sikkim. Mr. Gamble has also given some interesting Chittagong plants. From Mr. Duthie, Superintendent of the Botanical Garden at Seharunpore, have been received a quantity of plants collected by him in the North-Western Himalaya, chiefly in the valleys of the Tonse and Jumna. To Mr. Fisher of the Assam Forest Department I am indebted for plants collected during his tours of duty in the Eastern Duars. Mr. Ford, of the Hong-Kong Botanical Garden, presented a very nice set of plants, chiefly collected in that island. From Major Collett were received a few plants from the Kurrum Valley; from Mr. Godefroy LeBceuf a large collection of plants from Portugal; from Archdeacon Hose specimens of Malayan ferns; and from Mr. H. O. Forbes some 250 species collected in the Bantam districts in Western Java. My own collections made during my recent visit to the Straits and Java were also added to the herbarium, as also those made in the interior of Sikkim by native collectors sent from the cinchona plantations.

7. The year has been one of misfortune as regards the European staff of the garden. Mr. A. Biermann, the curator of the garden, who had to take leave to Europe during 1870 on account of injuries received from a tigress, returned to duty in January last. A little more than a month, however, after his return he was seized with cholera and died after only eighteen hours' illness. During Mr. Biermann's fifteen years' residence in India, he had acquired a large and varied experience of Indian gardening; he was in every way an excellent officer, and his loss is a serious blow to the efficiency of the garden. Mr. John Scott, who has been connected with the garden for seventeen years, and who since Mr. Kurz's death has had charge of the herbarium, was compelled, on account of malarious fever of a very bad form, to proceed to England on sick furlough towards the end of the year, and for some time I was left without any European assistant. To fill Mr. Biermann's place, Mr. Pantling has, since the year ended, been brought down from the cinchona plantations, and au

assistant gardener, selected by Sir Joseph Hooker from the Kew staff, is on his way out. Mr. Scott's place remains unfilled, and as a man of sufficient botanical acquirements to take charge even of the routine duties of a large herbarium is not likely to be had in India for a limited period and for the salary that is available (the half of Mr. Scott's pay), the appointment of curator of herbarium must remain unfilled until Mr. Scott's return.

8. The budget allotment for the year (including a special grant of Rs. 6,400 for garden improvements) was Rs. 68,850, the whole of which was expended. The receipts for sale of plants amounted to Rs. 1,137-14-3, and were paid into the treasury as Government revenue.

9. *Lloyd Botanical Garden*.—Much progress has been made in the formation of the branch botanic garden at Darjeeling. The land, which (as reported last year) was so generously given by Mr. Lloyd, has been cleared of the low undergrowth by which it was covered and has been deeply dug; a stout fence has been erected where necessary along the boundary; bridges have been thrown across the two streams which run along the southern and northern limits of the garden; many trees have been planted; plots of shrubs and herbaceous plants have been put out, and the spaces between these have been grassed. A considerable number of propagating frames had been erected towards the end of the previous year. These were added to during the past year, and a commodious double-span propagating house was also built. This accommodation was utilized by the curator as fast as became available, and by the end of the year he had raised many thousands of seedlings and cuttings of useful and interesting plants. A large conservatory is now in course of erection, and before another year elapses I hope this branch garden will be in full working order.

During the year under report 687 plants were received and 2,134 were distributed, 1,706 packets of seeds were received and sown, and 139 packets were given away. Arrangements have, since the termination of the year, been made for selling surplus stock, as it is believed that this is the arrangement by which the garden can really be made most useful to the local public.

• Mr. Jaffrey has been in charge of this garden since its commencement, and its rapid progress and tasteful appearance do him, in my opinion, great credit. In addition to the care of the Lloyd garden, Mr. Jaffrey has had charge of the municipal vegetable garden. He has also done much good work in laying out walks on Observatory hill, and in planting and improving the grounds round the Town Hall.

10. The usual tabular returns of receipts and distribution of seeds and plants are appended.

APPENDIX I.

Statement showing Plants received from 1st April 1879 to 31* March 1880.

From whom received.	Wardian cases.	BOXES.	Number of plants.
Royal Botanic Garden, Kew, London	1	3	114
" " " Ceylon... ..	1	.....	38
Botanic Garden, Brisbane	1	.....	28
" " Singapore	5	3	229
" " Java	8	8	251
Colonel Hawkes, Public Garden, Rangoon	2	5	235
Victoria Garden, Bombay	1	.....	25
Public " Bangalore	2	4	235
Government Garden, Ootacamund	3	.....	340
Eden Garden, Calcutta ... ..	.....	.....	17
Agri-horticultural Society, Calcutta ... ..	.....	.....	83
" " " Madras	2	.....	79
" " " Rangoon ... ..	.....	.....	1
" " " Lucknow ... ..	.....	2	21
Acclimatization Society, Queensland, Australia	3	.....	169
Chief Commissioner, Andaman Islands	1	1	70
Forest Department, Chittagong ... ..	.....	1	10
H. R. Cooke, Esq., Calcutta ... ..	.....	.....	24
J. Gammie, Esq., Government Cinchona Plantation, Darjeeling	1	2	207
J. L. Lister, Esq., " " " "	4	5	265
D. L. Barr, Esq., Calcutta ... ..	.....	.....	8
E. H. Man, Esq., Nioobar*	3	7	474
J. Barton Groves, Esq., Julpigoree ... ..	.....	.....	4
Dr. T. Beaumont, Indore ... ..	.....	1	11
G. Bartlett, Esq., Calcutta ... ..	.....	.....	60
A. O. Hume, Esq., C.B., Calcutta ... ..	.....	.....	1
L. D. Cruickshank, Esq., " ... ..	.....	1	88
Rev. J. Miles, Bingham Rectory	A collection of bulbs.		
Major Mant, B.E., Bombay ... ..	.....	2	420
H. G. Gilbert, Esq., Rangoon	1	1	847
Major Herschell, B.E. ... ..	.....	1	35
W. G. Head, Esq., Crystal Palace, London	1	1	94
J. N. Hardinge, Esq., Rangoon	1	.....	19
A. Linberry, Esq., Kurseong ... ..	.....	.....	1
J. Owen, Esq., Oalcntta ... ..	.....	4	72
P. M. Lowther, Esq., Howrah ... ..	.....	.....	51
D. Low, Esq., Garden Reach ... ..	.....	.....	88
M. Louis Van Houtte, Ghent, Belgium	1	1	53
Wills' Nursery, London	1	.....	85
J. N. T. Wood, Esq., Calcutta... ..	.....	.....	1
G. D. Oswell, Esq., Bishop's College, Calcutta ... ..	.....	.....	2
Dr. Payne, Calcutta ... ..	.....	.....	1
" Purves, Darjeeling ... ..	.....	1	150
" Walsh, Sydney... ..	1	.....	105
" Rowell, Singapore	1	.....	29
The Ven'ble Archdeacon Hose, Singapore ... ..	.....	.....	4
T. Thomson, Esq., Calcutta ... ..	.....	.....	207
W. Wendland, Esq., Hanover ... ..	.....	1	64
J. Scott, Esq., Singapore	1	8	178
Babu S. P. Chatterjea, Calcutta ... ..	.....	.....	18
" B. M. Mookerjea, " ... ..	.....	.....	7
Hurry Malli, a native nurseryman, Calcutta ... ..	.....	.....	570
Sreenath Malli, " " " ... ..	.....	.....	27
Total	46	63	6,165

APPENDIX II.

Statement showing Plants sent out from 1st April 1879 to 31st March 1880.

To whom sent.	Wardian cases.	Boxes.	Number of plants.
Government-house Garden, Calcutta ...	...	...	51
Belvedere Garden, " ...	...	...	890
Chief Commissioner, Andaman Islands ...	2	...	80
Royal Botanic Garden, Kew, London ...	5	...	142
			A collection of bulbs.
Royal Botanic Garden, Ceylon ...	1	...	110
Imperial Botanic Garden, Vienna ...	1	...	43
Botanic Garden, George Town, Pomerara ...	3	...	92
" " Singapore ...	2	...	92
" " Sydney ...	1	...	38
" " Java ...	7	...	847
" " Brisbane ...	1	...	35
" " Réunion ...	1	...	40
" " Natal ...	1	...	83
Cantonment Garden, Rangoon ...	1	...	41
Lloyd Botanic Garden, Darjeeling ...	2	8	50
			A collection of bulbs.
Victoria Garden, Bombay ...	2	1	78
Public " Rangoon ...	3	2	176
" " Bangalore ...	2	...	88
Eden " Calcutta ...	...	...	651
Zoological " " ...	...	...	1,429
Economic Garden, Sularu, Scinde ...	1	...	1?
Government Park, Barrackpore ...	...	...	21
" Cinchona Plantation, Darjeeling ...	1	2	<8
Acclimatization Society, Queensland, Australia ...	1	...	62
Agri-horticultural Society, Madras ...	1	...	61
" " Calcutta ...	...	...	660
W. Bull, Esq., Chelsea, London ...	2	1	189
Director of Agriculture and Commerce, North-Western Provinces ...		Bheea stems, 64 mds.	
E. C. Buck, Esq., Allahabad ...	...	...	24
Commissioner of Chittagong ...	...	2	66
Forest Department, Chittagong ...	...	61	2,610
Medical College, Calcutta ...	...	...	220
Doveton " " ...	...	...	200
St. Xavier's " " ...	...	...	270
LaMartinière School " ...	...	...
Normal " " ...	...	...	.71
Reformatory " Alipore ...	...	...	200
Cathedral Male Orphanage, Calcutta ...	...	...	182
St. Joseph's School ...	...	...	62
Free School, Calcutta ...	...	...	70
Meteorological Observatory, Calcutta ...	...	...	J90
Superintendent of Jail, Baraset... ..	...	...
" " Manbhoom ...	...	8	19
" " Patna ...	...	9	80
" " Midnapore ...	...	...	200
" " Benares Central Prison ...	...	16	200
Presidency Jail, Calcutta ...	...	...	805
East India Railway, Patna ...	...	86	312
" " " Howrah ...	...	...	720
Northern Bengal State Railway, Sara ...	...	60	200
Eastern Bengal Railway, Scaldah ...	...	60	1,200
Cantonment Magistrate, Dinapore ...	...	1	1,000
Officiating Magistrate, Furreedpore ...	...	4	40
Mie ex-King of Oudh, Garden Reach ...	...	...	60
Executive Engineer of Bhagulpore ...	...	2	60
" " of Jeypore ...	...	2	
" " of Chinsurah ...	...	...	77
District Engineer, Mozufferpore ...	...	9	200
" " Pubna ...	...	4	J00
SuMistriet Officer, Baraset ...	...	...	20
Officiating Collector of Monghyr ...	...	5	100
Superintendent of General Hospital, Cuttack ...	...	...	25
General Hospital, Calcutta ...	...	...
" " Howrah ...	...	...	08
W. H. Hardinge, Esq., Howrah ...	...	...	18

APPENDIX II—continued.

To whom sent.	Wardian cases.	Boxes.	Number of plants.
Government cattle-shed, Hastings	Si)
Superintendent of Small Arms Ammunition Factory, Dum-Dum	200
A. Linberry, Esq., Kurseong	...	1	2
Major R. F. Angelo, Ghunar	...	6	126
Captain Lawrence, Damookdea Station	...	3	61
W. J. Ainsworth, Esq., Calcutta	24
A. Apcar, Esq., Calcutta	13
S. T. Apcar, Esq., Garden Beach	3
H. Beverley, Esq., Alipore	36
T. Barr, Esq., Garden Reach	20
Dr. T. Beaumont, Indore	...	3	39
Major W. F. Badgeley, Shillong	...	2	56
T. Bromley, Esq., Bombay	...	1	27
Lady Garth, Calcutta	1
Capt. J. Adamson of the ship 'Roman Empire'	1	...	36
Miss Adams, Calcutta	100
G. Bartlett, Esq., Calcutta	5
H. R. Cooke, Esq., "	63
General Cadell, C.B., Madras	1	...	27
T. B. Curtis, Esq., Darjeeling	...	1	46
J. B. DuBois, Esq., Calcutta	29
R. Dawson, Esq., Rangoon	2
D. Duburn, Esq., Calcutta	250
Misses Finden, Calcutta	50
F. Greenway, Esq., Calcutta	3
J. H. Gilbert, Esq., Rangoon	1	2	74
Messrs. Gladstone, WyUie & Co., Calcutta	1	...	28
Dr. Griffith, Dinapore	...	2	53
Surgeon of the S. S. <i>Mongolia</i>	...	1	32
Chief Officer of the "	...	1	32
J. W. Hemlow, Esq., Dum-Dum	4
Dr. J. T. Rowell, Singapore	1	...	26
J. Krol, Esq., Sumatra	...	1	48
D. Low, Esq., Garden Reach	32
P. Al Lowther, Esq., Sulkeah	3	...	74
H. G. Lochead, Esq., Howrah	2
J. L. Lister, Esq., Government Cinchona Plantation, Mongpoo	...	1	19
F. Laurie, Esq., Colombo	1	...	Cinchona plants 48
Miss Goulding, Cork	...	1	48
E. H. Man, Esq., Nicobars	2	...	64
W. Markby, Esq., Oxford	1	...	80
Major Mant, B.E., Bombay	2	...	46
Wesleyan Mission, Barrackpore	80
J. Mackenzie, Esq., Calcutta	24
Captain Murray, S. S. <i>Nepal</i>	97
Wesleyan Chapel, Calcutta	50
G. P. Martin, Esq., Seebpore	7
Messrs. Mackinnon, Mackenzie & Co., Calcutta	87
Dr. W. M. Muirhead, Assam	...	5	100
P. Michen, Esq., Rungpore	...	3	48
Messrs. MacNeill & Co., Calcutta	80
McClelland, Esq., S. S. <i>Commilla</i>	6
J. Owen, Esq., Calcutta	17
Dr. A. J. Payne, "	10
L. Powell, Esq., Seharunpore	4
Captain Robertson, S. S. <i>Agra</i>	...	1	42
A. E. W. Sharpe, Esq., Calcutta	6
Dr. Shircore, Calcutta	20
L. Schwendler, Esq., Garden Reach	||	...	41
A. Simson, Esq.	...	3	30
R. S. Stanton, Esq., Calcutta	||	5	53
H. H. Stokes, Esq., Jamalpore	5
Messrs. Barry & Co., Calcutta	24
A. M. Guw-Smith, Esq., "	8
E. C. Schrottky, Esq., "	||	...	800
Suburban Municipality, Alipore	359
J. A. Stokes, Esq., Jamalpore	...	2	41
Mrs. Thomson, Calcutta	18
The Venerable Archdeacon Hose, Singaporo	2	...	49
Commandant, 18th Regiment, N. I., Buxa, Bhutan	...	1	84

APPENDIX II—concluded.

To whom sent.	Wardian cases.	Boies.	Number of plants.
W. M. Souttar, Esq., Calcutta	100
C. J. Wilkinson, Esq., Garden Reach	1
Major Waterhouse, Asiatic Society, Calcutta	50
Captain Wardroper, <i>Lady Melbourne</i>	1	.....	40
Miss Walker, Calcutta	4
T. Warton, Esq., Allahabad	1	8
Major P. Wheeler, Calcutta	1	11
Miss Wilson, Calcutta	8
R. Errington, Esq., Calcutta	21
Dr. Harvey, Alipore	18
H. L. Joakim, Esq., Calcutta	14
W. Plotts, Esq., Calcutta	26
Babu K. P. Mookerjea, Kadihatty	3
„ C. C. Ghuntashory, Seebpore	2
„ D. N. Basu, Calcutta	6
„ G. C. Datta, Seebpore	2	54
„ G. N. Tagore, Calcutta	10
„ G. C. Mookerjea, „	78
„ G. P. Mookerjea, Goberdanga	12
„ G. C. Gupta, Majehaut	30
„ G. N. Roy Chowdhary, Calcutta	18
„ G. L. Mullick, Calcutta	5
„ Sreehurry Chuckerbutty, Seebpore	2
„ K. C. Chatterjea, Calcutta	8
Rajah E. P. Guzendro, Midnapore	14
Babu K. L. Mookerjea, Seebpore	12
„ M. N. Chowdhary, Satkhira	22
„ M. N. Roy, Calcutta	6
„ N. C. Paul, „	2
„ N. C. Dutt, „	4
„ N. N. Mullick, Andool	24
„ O. K. Dutta, Bally	21
„ P. N. Gangooly, Santipore	26
„ P. C. Sein, Seebpore	24
„ R. D. Sen, Calcutta	5	29
„ R. C. Sen, „	2	17
„ R. G. Banerjea, „	1
S. P. Chatterjea, a native nurseryman, Calcutta	87
B. L. Bhattacharji, Satragachi	20
Bonomally Mookerjea, Calcutta	20
„ B. P. Singh, Beerbhoom	14
Prince Nurudin Khan, Russapugla	26
Shaik R. B. Cauzi, Seebpore	2
Hurry Malli, a native nurseryman, Calcutta	48
EBghanMalli, „ „ „	13
A visitor	72
Total	69	321	19,447

APPENDIX in.

Statement of Seech received from Ut April 1879 to 31«* March 1880.

From whom.	Number of parcels or packages.
Sir J. D. Hooker, K.C.S.L, C.B., F.R.S., Royal Garden, Kew, London	17
Dr. Hegel, Imperial Garden, St. Petersburg, Russia	291
M. Naudin, Botanical Garden, Autibes, France	117
Botanical Garden, Palermo, Italy	29
„ „ Peradeniya, Ceylon	4
Dr. VanNooten, Java	12
Dr. Scheffer, Botanical Garden, Java	86
Botanical Garden, Jamaica	2
„ „ Natal	25
„ „ Mauritius	40
„ „ Brisbane, Australia...	28
„ „ Singapore	18
„ „ Darjeeling	275
Director, Botanic Garden, Melbourne, Australia	29
J. F. Dutbie, Esq., Botanical Garden, Seharunpore	139
Baron VonMuller, F.E.S., University, Melbourne, Australia	285
Colonel Hawkes, Superintendent of Government Garden, Bangoon	4
J. Cameron, Esq., Superintendent, Lall Bagh, Bangalore	16
Conservator of Forests, Punjab	41
Assistant Conservator of Forests, Punjab	1
Conservator of Forests, Central Provinces	1
Deputy Conservator of Forests, Akola	1
Assistant Conservator of Forests, Chittagong	2
Messrs. Haage and Schmidt, Erfurt, Prussia	78
Superintendent of Agriculture and Horticulture Society's Garden, Lucknow	1
Agricultural and Horticultural Society, Madras	1
Secretary to the Queensland Acclimatization Society, Brisbane, Australia	34
William Bull, Esq., Chelsea, London	302
M. le Chevalier Gallian, Consul-General for Italy, Calcutta	3
Hon'ble J. Thurston, Secretary to the Government of Fiji Islands	1
Dr. Kirk, Zanzibar	6
Prince Rama Varma, First Prince of Travancore	4
G. Kneebone, Esq., Darjeeling Terai Tea Company	9
Dr. Beaumont, Indore	2
Deputy Commissioner, Jubbulpore	4
Messrs. Bogg, Dunlop & Company, Calcutta	1
Robert Effis, Esq., Waiiabad	18
J. Monro, Esq., Pashok Tea Company, Darjeeling	20
From a gentleman	1
Dr. Anderson, Imperial Museum	2
J. N. Wood, Esq., Camac Street	2
William Bell, Esq., Dehra Doon	1
Messrs. Stanley, Price & Company, Ballygunge	80
E. H. Man, Esq., Andaman and Nicobar Islands...	288
Collected by the Superintendent	56
James Gammie, Esq., Cinchona Plantation, Mungpoo	11
J. L. Lister, Esq., „ „ „	87
Dungboo, Lepcha, Darjeeling	27
Total	2,448

APPENDIX IV.

Statement showing Seeds despatched from 1st April 1879 to 31st March 1880.

To whom supplied.	Number	of	parotl* or packages.
India Office, London	1
Sir J. D. Hooker, x.cs.i., C.B., F.B.B., Director, Royal Garden, Kew, London	90
L-r. Kegel, Imperial Garden, St. Petersburg, Bussia	166
Sig. Todaro, Botanical Garden, Palermo, Italy	133
Dr. Scheffer, Director, Botanical Garden, Java	100
„ Thwaites, C.M.G., F.B.B., Botanical Garden, Feradeniya, Ceylon	22
Professor Balfour, Director, Botanical Garden, Edinburgh	8
D. Morris, Esq., Director, Botanical Garden, Jamaica	21
Superintendent, Botanical Garden, Durban, Natal...	196
M. Poitier, Director, Botanical Garden, Reunion	180
J. F. Duthie, Esq., Superintendent, Botanical Garden, Seharunpore	77
A. T. Jaffrey, Esq., Curator, Lloyd Botanical Garden, Darjeeling	...	;	680
A. Jameson, Esq., Botanical Garden, Ootacamund	14
W. Hill, Esq., Director, Botanical Garden, Brisbane, Queensland, Australia	23
J. Home, Esq., Superintendent, Botanical Garden, Mauritius	76
C. Moore, Esq., Director, Botanical Garden, Sydney, Australia	18
J. G. T. Jenman, Esq., Botanical Garden, George Town, Demarara	204
J. H. Murton, Esq., Botanical Garden, Singapore	677
Dr. Sohomburgh, Director, Botanical Garden, Adelaide, Australia	11
Baron Yon Muller, F.U.S., University, Melbourne, Australia	88
Victoria Garden, Bombay	6
J. Cameron, Esq., Superintendent, Government Garden, Bangalore	2
Colonel Hawkes, Government Garden, Rangoon	17
A. Parsons, Esq., Public Garden, Ajmeer	280
Colonel Beddome, Inspector-General of Forests, Madras	1
B. H. Baden Powell, Esq., Conservator of Forests, Punjab	1
J. Sykes Gamble, Esq., Conservator of Forests, Bengal	1
The Conservator of Forests, Pegu Circle, Rangoon	26
„ „ „ Tenassarim, Moulmein	4
„ „ „ Central Provinces	8
Assistant Conservator of Forests, Assam	4
„ „ „ Chittagong	6
The Secretary to the Queensland Acclimatization Society, Queensland, Australia	265
MM. Jules de Cock et Soeur, Ghent, Belgium	9
M. A. Godfrey Lebeuf, Argenteuil, France	30
Messrs. Haage and Schmidt, Erfurt, Prussia	28
MM. A. Von Zeert et Fils, Ghent, Belgium	14
M. Louis Van Houtte, Ghent, Belgium	69
Colin McEacheron, Esq., Liverpool	185
William Bull, Esq., Chelsea, London	18
J. Steavenson, Esq., Secretary to Agri-horticultural Society, Madras	*
W. Ridley, Esq., Superintendent, „ Lucknow	15
J. Coles Hardinge, Esq., Secretary to Agricultural and Horticultural Society, Rangoon	5
C. R. Lindsay, Esq., C.B., Honorary Secretary to Agricultural and Horticultural Society, Lahore	76
J. Cameron, Esq., Lallbagh, Bangalore	7
A. H. Blechynden, Esq., Secretary, Agricultural and Horticultural Society of India, Calcutta	22
Dr. Bidie, Central Museum, Madras	2
E. O. Buck, Esq., as., Director of Agriculture, North-Western Provinces	11
Dr. Beaumont, Indore	1
» Bonavia, Fyzabad	12
J. S. Page, Esq., Apopka, Orange & Co.	17
M. le Chevalier Gallian, Consul-General for Italy, Calcutta	69
J. Thurston, Esq., Secretary to the Government, Fiji Island...	212
J. S. Griolton, Esq., Colombo, Ceylon	1
A. Fergusson, Esq., „ „	1
George Takeda, Esq., Interior Department, Yeddo, Japan	1
V- Teuscher, Esq., Bandong, Java	67
Edwin Arnold, Esq., C.S.I., Daily Telegraph Office, London	1
J. H. Lawrence, Esq., Royal United Service Institution, London	4
J. Maokey, Esq., Totteridgo, Green Herts	10
Dr. E. Sanders, St. Helens, Jersey	2
Sir George Macleay, Pendell Court, Surrey	86
M. deFarges, Consul-General for France, Calcutta	479
Mrs. Bladen Neil, Sydney, New South Wales	6
Madame Moulard, Park Street, Calcutta	48
Major Abbott, Political Superintendent, Jalrapatan	12
J. N. Wood, Esq., Camac Street, Calcutta	46
A. D. Cooper, Esq., Civil Medical Officer, Garo Hills	28
George Henderson, Esq., Civil Surgeon, Uawul Pindi	2
Dr. William Macrae, Chingleput, Madras	3
Messrs. Finlay, Muir & Co., Calcutta	1

APPENDIX IX—concluded.

To whom supplied.	Number of parcels or packages.
Messrs. Colvin, Cowie & Co., Calcutta	1
„ John Barry & Co., „	1
„ Stanley, Price & Co., Bally gunge	14
„ Begg, Dunlop & Co., Calcutta	92
C. H. Pillans, Esq., Phoolbari Tea Estate, Siliguri	1
J. Kennedy, Esq., Darjeeling	5
W. Strachan, Esq., Salaroo, Scind	2
Major Badgely, Shillong	10
Political Agent, Kolapur, Deccan	1
J. P. Devine, Esq., Northern Bengal State Railway	2
Major W. S. Brookes, Deputy Commissioner, Bilaapur, Central Provinces	1
Chester Macnaughton, Esq., Rajkumar College, Rajkote	84
Atkinson, Esq., Executive Engineer, Lower Ganges Canal Estate	112
H. W. Steven [^] , Esq., District Engineer, Mozufferpore	2
Engineer of Tributary States, Orissa	7
Major J. Miller, Malwa Bheel Corps, Sirdarpore	1
H. Battary, Esq., Kissengunge	55
C. A. Cress well, Esq., Allamungo, British Burmah	1
Lieutenant-Colonel W. Winson, Bura, Bhutan	5
General James Devine, Commander, His Highness the Guickwar's Troops, Baroda	1
Captain Thomas McGirn, 62nd Regiment, Gwalior	60
Lieutenant Walter Langooll, F Company, 73rd Regiment, Lucknow	18
James Gammie, Esq., Government Chinchona Plantations	15
J. L. Lister, Esq., „ „ „	1
A. Bierman, Esq., „ „ „	771
G. H. Jameson, Esq., Sakessar Hill, Sahpore District, Punjab	5
A. L. Simson, Calcutta	10
W. P. Meres, Esq., Comillah, Tipperah	1
C. W. Edwards, Esq., Motihari, Chumparun	2
Lieutenant-Colonel H. R. Whittle, Futegarh	40
W. S. Crowdy, Esq., Bhogowanpore, Mokama	1
D. N. Reid, Esq., Sadowah, Sewan, Sarun	1
C. F. Amery, Esq., Mussoorie	1
R. Wooley, Esq., Coonoor, Nilgiri Hills	38
The Hon'ble Sir Alexander Arbuthnot, E.C.S.I.	9
Messrs. Money Devisholah, Ootacamund	1
E. S. Trafford, Esq., London	58
Captain Wilkinson, P. and O. Company's Office	1
£. Wardroper, Esq., ship <i>Lady Selbourne</i> , Calcutta	50
W. Strachan, Esq., Hyderabad, Sindet..	4
Dr. Wooley, Coonoor, Nilgiri Hills	88
£. Claxton, Esq., Allahabad	1
P. M. Lowther, Esq., Sulkeah	36
James Mitchell, Esq., Shalimar	4
Lieutenant-Colonel Ram Chunder Rao, Balwunt, Comdt., H. H. Scindia's Artillery, Gwalior	51
Vice-Chairman, Municipality, Saki	81
H. H. Rama Varma, First Prince of Travancore	2
Thakoro Saheb of Rajkote, Kattywar...	104
Babu Sooroj Deb Narain Singh, Roonii, Sydpur, Tirhoot	3
„ Sibprossonno Chatterjee, Dalhousie Institute	13
„ Purta Chundra Ghose, Calcutta	1
„ Prossonno Coomar Sein, Sebpore	2
„ Nuffer Chunder Pal Chowdhari, Natadah	2
„ Ram Chundra Tewary, Pakur, Rajbatty	1
„ Charoo Churn Mullick, Calcutta	1
„ Soshi Sikhoro Banerjee, Manager, Dcogan Estate, Palamow <i>vid</i> Nagpore	1
„ Dwarknath Chatterjee, Pleader, Soori, tteerbhoom	1
„ Mohendro Nath Scin, Jeypore	1
„ Nursing Persad Dutta, Calcutta	2
„ Netro Lai Dey, Registrar of Deods, Howrah	1
„ Lalah Kasheeram, Sreenagur, Ghurwal	2
Total	6,457

ROYAL BOTANICAL GARDEN,
The 14th July 1880.

ANNUAL REPORT OF THE ROYAL BOTANICAL GARDEN, CALCUTTA
FOR THE YEAR 1880-81.

No. 23G, dated Howrah, the 13th July 1881.

From—GEORGE KING, ESQ., M.B., Superintendent, Royal Botanical Garden, Calcutta,
To—The Secretary to the Government of Bengal, Financial Department.

I HAVE the honor herewith to submit the ninety-fourth annual report of the Royal Botanical Garden.

ANNUAL REPORT OF THE ROYAL BOTANICAL GARDEN,
CALCUTTA, FOR THE YEAR 1880-81.

THE work of laying out the garden, which has been in progress for some time past, was considerably advanced during the year. Operations were mostly confined to the eastern end of the garden, and consisted of the excavation of a drainage canal which, running along the northern boundary of that part of the garden, discharges under the Howrah road into a natural channel which separates the garden from the grounds of the Seebpore Engineering College. At the junction of this channel with the river, the college authorities last year built a sluice: the drainage along it is therefore quite under command. The soil obtained in excavating this canal was utilized in raising the level of, and in throwing into undulations, a large area of the garden in its neighbourhood. In connection with this work the ornamental lake in this end of the garden was enlarged and improved in shape. This part of the grounds may now be considered as finished. The canal thus formed will be of benefit not only to the garden but to many villages and fields outside it, as it will afford a ready outlet for water which used previously to accumulate during the rainy season. Along part of the western boundary of the garden a similar canal on a smaller scale has been dug. This canal I propose to extend during the year now entered upon. These canals form excellent barriers against stray cattle and thieving villagers. A good many new groups of trees have been planted out in parts of the garden of which the earthwork was completed during the previous year. The main road leading from the Howrah gate has been relaid, and its level has been considerably raised. The road leading from the flower-garden to the great banyan-tree has been widened by six feet, and in some parts had been relaid with new materials. The roadway of the mahogany avenue being so low as to be under water for weeks together during the rains, I have had it taken up; and as soon as the weather is suitable for earthwork, it will be raised in level and repaved. The nursery accommodation has been extended and improved by the erection, under the direction of Mr. Pantling (the Curator of the garden), of a glazed propagating-house, which promises to be a great success, and of an additional thatched plant-shed. The boundary of the garden being in many places rather ill-defined, I have, in communication with the Magistrate of Howrah, had a set of substantial stone pillars, bearing the initials of the garden and numbered consecutively, erected right round the land boundary. A good deal yet remains to be done to bring the western part of the garden into order; but on this subject I have already addressed a separate communication to Government. I have also brought to notice the advantage which would be gained by the establishment of a steam pump to keep the ornamental water in the garden at a high level.

2. *Rheea*.—A large patch of ground is still, by desire of the Government of India, kept under *rheea* for the purpose of supplying roots to persons who may wish to undertake the cultivation of this fibre. The prices which have on two occasions been offered for machines to clean *rheea* fibre have hitherto failed to create much interest in the matter in commercial circles in Calcutta, and the native zemindars are for the most part disinclined to meddle with new and unfamiliar cultivation. For reasons stated in my last report, I am not however sanguine as to the possibility of *rheea* cultivation

becoming a commercial success in Bengal; and I am not sure that the caution of commercial men and zemindars in this matter is altogether to be reprobated.

3. *Paper materials*.—In compliance with an order of Government which I had hitherto been unable to carry out, I deputed the Curator of the garden during the cold weather to examine the long grasses that grow on the banks of the Adjai and Damooda rivers with the view of testing[^] their suitability as materials for paper fibre. Mr. Pantling was absent on this duty for some weeks. He made a careful examination of many miles of the banks of both these rivers, as well as of those of the Brahmaputra between Chilmurree and Goalundo. On all three rivers Mr. Pantling found the prevailing grasses to consist of the three species of *Saccharum* known as *S. spontaneum*, *S. Sara*, and *S. fuscum*, the vernacular names of which are respectively *kashee*, *sara*, and *khuree*. Each of these grasses forms a stout reed from 5 to 10 feet high, and having a rather thick hard stem. This stout hard stem being quite unsuitable for paper-making, only the leaves and the leaf-sheaths can be taken into consideration. Fortunately I was able to show these materials to a gentleman connected with one of the largest firms of paper-makers in England, who came to India during the past cold weather for the express purpose of finding out what can be obtained from India in the shape of a paper fibre. The cost of collection and freight being taken into account, this gentleman's verdict was against all three fibres. At my request the Commissioner of Orissa was good enough to send me further supplies of some of the wiry grasses of the coast; but the same objection holds to all these, namely, that the proportion of hard, useless stem is so great as to preclude them from consideration as practicable sources of paper fibre. Something has been done in Burmah in the way of carrying out Mr. Routledge's proposals for the utilization of young bamboo shoots as a source of paper fibre; but as yet no very satisfactory results have been arrived at. As Esparto and Alpha grasses, at present so largely used in the manufacture of paper, are rapidly becoming scarce and dear, the necessity of some substitute for them is daily becoming more pressing. My own opinion is that, of Indian fibre-producing plants, the *Elephantain* is the one which promises best; and I think some attention might be well spent on its utilization. *Baobab* has been proved to be too slow of growth, and *Malachra capitata*, which has been recently suggested, does not seem to promise much.

4. *India rubber*.—The Cear & rubber-trees (*Manihot Glazovii*) continue to grow vigorously, and a few of them are now beginning to yield seed. The demand for young plants and for the seed of this species continues to be considerable; and of all the recently-imported rubber-yielders, it is the only one that promises any kind of success in this part of India. The Pard rubber (*Hevea*) and the Madagascar rubber vine (*Vahea*) have utterly failed. Of *Urceola elastica* and *Casillioa elastica*%, two well-known South American rubber* yielders, I have not hitherto been able to get more than two or three sickly plants. Of the great rubber creeper of the East African Coast (a species of *Limulophia*) seeds have—thanks to the kind exertions of Dr. Kirk, Consul-General at Zanzibar—been received at the garden, and some of them have germinated. But I fear, even if it were to turn out to be suited to the climate of Calcutta, *Landolphia* would prove rather an unmanageable crop; for it is described to be an enormous creeper, climbing to the tops of the highest trees. With regard to all these exotic rubbers, it must be remembered that (with the exception of Cear) they are either very large trees or climbers; and although it may pay well to collect rubber from them in their native forests where they have grown to maturity without cost to the collector, it is quite a different matter when their planting and protection have to be paid for, and their coming to maturity has to be awaited for years.

5. *Other economic plants*.—The locust bean or carob and the various kinds of *Eucalyptus*, of which the cultivation was pressed on Government, have been tried for years, and have all been found totally unsuitable to the soil and climate of Bengal. They may now, I think, cease to be reported on; so also may be baobab as a fibre-yielder and *Prosopis pubescens* as a cheap source of tanning material. Mahogany and guango or rain-tree are two exotic trees which really grow well in Bengal, and for which the demand is steady.

Arrangements were therefore made some time ago for regular annual importations from Jamaica of seeds of each. Last year, however, all the mahogany seed received from this source was quite bad.

6. *Herbarium*.—Large additions to the dried collections of plants were made during 1880-81. No year has passed since I was appointed to this garden during which I have not had to acknowledge contributions from the Royal Garden at Kew; and during the past year these contributions have been of more than ordinary value. Amongst them are a fine set of Dr. Aitchison's Kurram Valley plants, covering about 1,100 sheets, and a valuable set of named Indian plants collected by Mr. C. B. Clarke, of the Bengal Educational Service, who is now on special duty at Kew assisting Sir J. D. Hooker in the preparation of the *Flora Indica*. These collections of Mr. Clarke's have not as yet been all mounted, but they will probably cover 2,000 sheets. The Kew contributions include a quantity of plants from Ceylon and the Malay Archipelago, a number of named grasses, besides various interesting smaller lots too numerous to mention in detail. To Dr. Brandis, Inspector-General of Forests, the Herbarium is indebted for an interesting collection of Burmese plants; while Mr. J. S. Gamble, Conservator of Forests for Bengal, has supplemented his large contributions of former years by collections made by himself in the Chittagong, Orissa, and Chota Nagpore forests, and by further collections from Sikkim and the Western Dooars. Mr. Gamble's contributions for the year amount to about 2,000 specimens. A fine set of Chota Nagpore plants, jointly collected some years ago by Dr. J. J. Wood, Superintendent of Vaccination, and Mr. Peppé, of the Opium Department, has this year been added to the Herbarium; it amounts to about 1,500 sheets. Mr. Levinge, Secretary to Government in the Public Works Department, has presented a very fine set of Sikkim ferns, covering nearly 500 sheets. To Colonel Beddome, of the Madras Forest Department, the Herbarium is indebted for several collections of most interesting plants from Southern India, a part of the country of which the flora is still but poorly represented in the Calcutta collection. Mr. Fisher, lately of the Assam forests, but now a Professor in the School of Forestry at Dehra Dhoon, was good enough to present an interesting collection made during his tours of duty in the Eastern Dooars and Garo Hills. To M. G. Lebeuf, a French botanist, my best acknowledgments are due for a fine collection of Portuguese plants; as also to Colonel Collet, C.B., of the 32nd Pioneers, for an interesting collection of North-West frontier plants. In addition to these, the collection has been enriched by the receipt of many specimens collected by Messrs. Forbes and Kunstler in the Malayan Peninsula and islands.

7. *Interchange of seeds and plants*.—This has gone on actively. Wardian cases to the number of 40 and open boxes to the number of 134 have been received from various collectors and contributors, the aggregate number of plants contained in these being 8,305. On the other hand, 65 Wardian cases and 280 boxes of plants have been given out. Besides these, many plants have been issued in pots and in post parcels, the aggregate distributed during the year amounting to 17,270. Packets of seeds to the number of 1,256 have been received, while 3,224 have been issued. The contributors to whom the garden is chiefly indebted are Sir J. D. Hooker, C.B., K.C.S.I., F.R.S., of the Royal Garden, Kew; Sir George McLeay, F.R.S., of Pendell Court, Surrey; Dr. Treub, Director of the Botanic Garden, Buitenzorg, Java; Dr. Trimen, Director of the Botanic Garden in Ceylon; Mr. Duthie, Superintendent of the Botanic Garden, Sabarunpore; Dr. Regel, of the Imperial Garden, St. Petersburg; the Directors of the Botanic Gardens of Melbourne; Georgero Town, Domesara; and Mauritius; the Secretaries of the Agri-Horticultural Societies of Calcutta and Madras; the Superintendents of the public gardens at Rangoon, Bangalore, and of the Eden Garden, Calcutta; Colonel Cadell, v.c.; and Mr. E. H. Man, Andaman Islands.

8. *Official change**.—In the year the garden was deprived of the services of Mr. John Scott. Mr. Scott had been for seventeen years connected with the establishment—first in the capacity of Curator of the garden, and, since Mr. Kurz's death, as Curator of the Herbarium. He went home very ill in April, and died within a few days of his arrival in Scotland. Mr. Scott was in many respects a remarkable man. He had an original and thoughtful

mind; he was an acute and accurate observer of Nature, and was withal singularly modest and amiable. While still a lad employed in the Botanic Garden at Edinburgh, he published the results of some experiments on cross-fertilization, which attracted the notice of Mr. Darwin ; and it was through the help of Mr. Darwin and Sir Joseph Hooker that he was appointed to the Botanic Garden here. Mr. Scott continued to the end to observe and to experiment, and at his death he left a number of papers in manuscript; but these are for the most part too imperfect for publication. Mr. Scott was altogether a man fitted to have filled a far higher position than he ever attained to; and in him Government lost a valuable and devoted servant. Soon after Mr. Scott's death Mr. Pantling, formerly of the cinchona plantation, was appointed Curator of the garden, Mr. Craig being Assistant Curator. Messrs. Pantling and Craig have worked with much energy and heartiness during the year, and my best acknowledgments are due to them both. Up to the end of the year the Curatorship of the Herbarium remained unfilled, Mr. Brace, the gentleman selected for the post by Sir J. D. Hooker, not having arrived.

9. The budget allotment for the year (including a special grant of Rs. 3,000 for garden improvements) was Us. 64,000, the whole of which was expended. The receipts from sale of seeds and plants amounted to Rs. 1,835-13-6, and were paid into the treasury as Government revenue.

10. *Lloyd Botanical Garden.*—The chief work carried through in the Lloyd Botanic Garden at Darjeeling during the year was the erection by the Public Works Department of a handsome conservatory. The frame-work of this building is entirely of iron ; it is fitted with very strong glass, which it is hoped will be proof against the hail-storms which commonly visit the district every spring. The conservatory is a fine spacious building, and should, when the staging has been erected, afford accommodation for the growth of many plants hitherto unseen in cultivation in the Eastern Himalaya. The garden throughout the year has been in charge of Mr. Jaffrey, who has with much energy and skill continued the rather heavy work of laying it out. Besides the conservatory, there are in the garden a large propagating* house and a number of propagating-frames. The nurseries are well stocked with plants, a considerable number of which have been distributed to the Forest Department and to the public. Plants are now obtainable by purchase, and some sales have been effected. A house for the exhibition of plants for sale is about to be erected, and this will, it is believed, stimulate the sale business. At the suggestion of Sir Ashley Eden, a fine collection of seed potatoes of the best sorts was obtained from England and Australia. These were planted in a piece of municipal land near the garden, and the intention is to distribute the produce to potato-growers in the district with the view of improving the quality of Darjeeling potatoes, which has within recent years sadly degenerated. The Municipality have at last taken steps to confine within a masonry channel part at least of the bazaar drainage which passes along the southern boundary of the garden. It is to be hoped that they may soon take measures to remove the unsightly manure heaps which disfigure the ground to the east of the garden, in addition to the charge of the Lloyd Botanic Garden, Mr. Jaffrey has taken care of the municipal vegetable garden. He has discharged his duties well, and his efforts deserve my best acknowledgments.

11. The budget allotment of the Lloyd Botanic Garden for the year (including a special grant of Rs. 4,064 for conservatory and a grant for purchase of seed potatoes of Rs. 2,000) was Rs. 15,094, the whole of which was expended. The sum of Rs. 182-12-6 received for the sale of plants was paid into the Darjeeling Treasury by Mr. Jaffrey.

12. The usual returns of seed and plant distribution are appended to this report.

APPENDIX I.

Statement showing plants received from 1st April 1880 to 31st March 188L

From whom received.	Whidian cases.	Boxes.	Number of plants.
Belvedere Garden, Caloutta	...	...	8
Royal Garden, Kew, London	4	6	296
„ Botanical Garden, Ceylon	8	1	128
Botanical Garden, Glasgow	1	...	12
„ „ Melbourne	1	...	55
M „ George Town, Demerara	2	...	42
„ „ Buitenzorg, Java	5	3	237
„ „ Saharunpore	...	1	205
Public Garden, Rangoon	2	...	41
Eden Garden, Calcutta	...	...	28
Lloyd Botanic Garden, Darjeeling	4	n	774
Agri-Horticultural Society, Madras	1	1	102
Colonel Cadell, v.c, Chief Commissioner, Andamans	1	...	40
Superintendent, Public Garden, Bangalore	1	...	59
Ditto, Government Park, Barraokpore	...	...	4
Forest Officer, Chittagong	...	...	330
H. R. Cooke Esq., Calcutta	...	2	29
J. L. Lister, Esq., Government Cinchona Plantation	3	56	1,694
Messrs. Haage and Schmidt, Erfurt, Prussia	1	1	100
Sir Geo. McLeay, London	1	...	56
W. Bull, Esq., „	2	...	140
Surgeon-Major Sanderson, Jubbulpore	...	2	90
A. Kim son, Esq., Chittagong	...	8	1,151
E. H. Man, Esq., Nicobars	1	7	454
H. A. Gantzer, Esq., Howrah	...	...	4
J. S. Gamble, Esq.,	...	1	1
—Steel, Esq., Rio de Janeiro	...	2	50
Alex. Grey, Esq., Java	...	1	25
T. J. Rowell, Esq., Singapore	1	...	10
Major Berkeley, Andamans	...	5	272
W. M. Crooker, Esq., Sarawak, Borneo	2	7	142
Dr. D. D. Cunningham, Calcutta	...	...	4
„ J. G. Pilcher, Howrah	...	1	34
„ Payne, Caloutta	...	...	20
„ Raye „	...	...	12
„ Brandis, C.I.B.	...	1	31
P. A. Lazarus, Esq., Calcutta	...	...	5
D. Low, Esq., Garden Reaoh	...	...	10
A. Shekleton, Esq., Calcutta	...	...	2
A. Apoar, Esq., „	...	...	1
S. T. Apoar, Esq., Garden Reaoh	...	...	22
J. Owen, Esq., Caloutta	...	...	2
W. Pigott, Esq., „	...	...	11
C. O. Weynton, Esq., Khasi Hills	...	1	20
F. J. N. Warden, Esq., Garden Reaoh	...	...	1
R. West, Esq., Caloutta	...	...	4
A. Wilsop, Esq., „	...	...	367
W. J. Firth, Esq., Garden Reaoh	...	2	63
C S. Rostan, Esq., Caloutta	...	...	11
O. ROBS, Esq., „	...	...	22
G. H. Bartlett, Esq., „	...	...	16
Collected by Superintendent in Darjeeling	...	6	396
„ „ Herr Kunstler, Perak	4	2	311
„ „ H. Pantling, Esq., Garo Hills	...	4	107
„ „ J. Soott, Esq., in Penan?	...	1	17
Messrs. Williamson, Magor & Co., Caloutta	...	2	12
Baboo S. P. Chatterjea,	...	...	20
A Native Nurseryman,	...	...	264
By purchase ...	...	...	41
Total	40	134	8,305

APPENDIX H.

Statement showing plants sent out from 1st April 1880 to 31** March 1881.

To whom sent.	W»rdi»n. caws.	Bora.	Number of plants.
Government House, Simla ...	...	15	137
Belvedere Garden, Alipore ...	...	...	23
His Grace the Archbishop of Calcutta ...	...	...	119
Chief Commissioner, Nagpore ...	...	...	2
" " Mysore ...	1	...	40
Royal Botanic Garden, Ceylon ...	3	1	160
" Garden, Kew, London ...	3	1	114
Botanic Garden, Berlin, Germany ...	1	...	42
" " George Town, Demerara ...	4	...	106
" " Singapore ...	2	1	89
" " Java ...	6	3	267
" " Saharunpore ...	...	25	715
" " Punjab ...	...	1	55
Lloyd Botanical Garden, Darjeeling ...	...	4	151
Directeur de Jardin Colonial de Réunion ...	2	...	96
Public Garden, Rangoon ...	1	1	47
Zoological Garden, Calcutta ...	...	...	225
Cathedral Garden, " ...	...	...	COO
Eden Garden, " ...	...	...	1,401
Agri-Horticultural Society, " ...	...	...	581
" " " Madras ...	1	...	36
Yeitch's Eoyal Exotic Nursery, London ...	...	1	330
Will's Nursery, " ...	1	...	33
M. LoBeuf, Paris ...	...	1	35
Acclimatisation Society, Queensland ...	...	1	13
The Municipality, Howrah ...	...	...	125
Presidency Jail, Calcutta ...	...	...	250
Superintendent of Central Prison, Benares ...	...	9	245
" " Uazaribagh ...	...	2	rheea roots.
" " Dacca ...	...	4	200
Government Park, Barrackpore ...	...	...	706
Superintendent, Campbell Medical School, Calcutta ...	...	...	100
La Martiniere School, " ...	...	...	9
Cathedral Male Orphanage, " ...	...	...	180
Canning College, Lucknow ...	...	...	11
Reformatory School, Alipore ...	...	...	61
Raffle's Institute, Singapore ...	1	...	30
M. Louis Van Houtte, Ghent, Belgium ...	...	1	25
J. Linden, Esq., Ghent, Belgium ...	...	1	62
Brazilian Consul, Singapore ...	1	...	42
Cantonment Magistrate, Berhampore ...	...	8	200
Magistrate, Patna ...	...	18	450
" Howrah ...	...	...	20
Hon'ble Justice A. Wilson, Calcutta ...	...	...	62
Chairman, District Road Cess Committee, Chittagong ...	...	6	135
Chairman, Road Cess Committee, Chumparun ...	...	8	300
Divisional Officer, Barrh ...	...	2	50
" it Ferozepore ...	...	7	230
Road Overseer, Buoktearpore ...	...	10	250
Executive Engineer, Out tack ...	...	2	100
Conservator of Forests, Darjeeling ...	...	1	17
New Terai Association, Silligori ...	...	G	150
Secretary to the Maharajah of Johoro ...	1	...	30
Superintendent, General Hospital, Calcutta ...	...	...	18
" ii ft Cuttaek ...	...	3	30
Dr. J. G. Piloher, Howrah Hospital ...	...	...	149
W. H. Hardinge, Esq., " ...	...	...	47
H. Wendland, Esq., Hanover ...	...	1	41)
J. Gammie, Esq., Govt. Cinchona Plantation, Darjeeling ...	...	1	35
J. L. Lister, Esq., " " " " ff ...	...	3	44
Superintendent of Gardens, Durbhunga Raj ...	...	6	65
A. Iinberry, Esq., Darjeeling ...	...	1	20

APPENDIX U—continued.

To whom sent.	Wardian. cases.	Boxes.	Number of plants.
P. H. O'Hanlan, Esq., Silligori	4	53
F. A. Moller, Esq., „	5	68
W. K. Darley, Esq., Julpaguri	2	30
Dr. P. E. Charles, Cannes, France ...	1	.....	41
D. Carson, Esq., Melbourne	1	42
D. Berigny, Esq., Purneah ...	I\ maund rhea roots.		
¹ A. Simson, Esq., Calcutta	12	238
Messrs. Turner & Co., „	12
G. Thomson, Esq., S.S. <i>Purulia</i>	12
Col. Owen Williams, C.B., London ..	4	1	152
E. H. Palmer, Esq., Cuttack	1	110
Milton Steuart, Esq., London ...	3	.....	110
Miss Tytier, Calcutta	1	13
Superintendent, Wingfield Park, Lucknow	3	. 85
Hon'ble H. J. Reynolds, Calcutta	57
O. Rostan, Esq., >>	20
Dr. Raye, „ „ „ „ „ mmm	9
Garrison Quartermaster, Fort William	6	871
Captain J. Derring, Chunar	109
G. H. Walkerdine, Esq., Calcutta	12	2
Mrs. Wilson, „	120
R. B. West, Esq., „	8
Captain Wilkinson, „	11
J. N. T. Wood, Esq.,	22
Miss Faithful, Uowrah	13
G. D. Oswell, Esq., Calcutta	65
J. Owen, Esq., „	9
W. Jacks, Esq., Cossipore	8
Superioress, Entally Convent, Calcutta	100
W. F. Mitchell, Esq., Seehpore	4	14
Dr. Gordon, Calcutta	76
H. A. Gantzer, Esq., Howrah	3
Miss Lyall, Calcutta	1
S. F. Lake, Esq., Cossipore	22
J. Villa, Esq., Rangoon ...	3	.....	3
Ven'ble Archdeacon Hose, Singapore	103
J. G. Vaucher, Esq., Calcutta	4
Col. T. Nicholls, R.A., Cossipore	1	4
John Ninet, Esq., Alexandria	14
H. G. Ileins, Esq., Calcutta	3	70
E. N. Grace, Esq., Assensolo	82
Alex. Grey, Esq., Sourabaya, Java ...	2	.....	51
D. Low, Esq., Garden Reach	10
F. A. Lazarus, Esq., Calcutta	23
F. Lucas, Esq., Burcical
W. G. Head, Esq., Superintendent, Crystal Palace Garden ...	1	.....	89
London	30
J. Hunt, Esq., Calcutta	36
Captain J. H. Hamilton, Ship <i>Cnrisbrooke Cattle</i> ...	1	.....	48
The ex-King of Oudh, Garden Reach	38
8. Kilby, Esq., Calcutta	90
E. H. Man, Esq., Nicobars ...	1	.....	48
O. Moller, Esq., Silligori	5	.....
Sip George McLeay, London ...	3	1	126
A. Mears, Esq., Jamalporo	2	34
Messrs. Bullock Brothers & Co., Bassein	1	6
William Bull, Esq., London	1	60
Rev. M. U. Buckland „	1	37
H. H. Rajah Brooke, Borneo — ...	1	.....	27
Dr. T. Beaumont, Residency Surgeon, Indore	4	71
H. W. I. Barr, Esq., Garden Reach	4
J. Benson, Esq., Seehporo	65
W. H. Bonnet, Esq., Sydney ...	1	.....	6
Messrs. Barry & Co., Calcutta	50
Major Berkley, Andamana ...	2	1	146
Meteorological Observatory, Calcutta	100

APPENDIX II—continued.

To whom sent.	Wardian cases.	Boxes.	Number of plants.
H. Beverley, Esq., Calcutta	1		10
G. W. Bartlett, Esq., "			35
R. A. Donnithorne, Esq., Howrah			4
O. Dumaine, Esq., Chandernagore			15
Hon'ble J. H. Morris, c.s.i., Nagpore		1	25
W. M. Glashin, Esq., "		2	20
A. Q. Mackenzie, Esq., Poonah		2	20
C. H. Pope, Esq., Calcutta		1	14
Dr. Payne, "			5
W. Pigott, Esq., "			7
J. R. Pomeroy, Esq., "	4		158
Hon'ble Major Baring, c.s.i., Calcutta			132
P. Donaldson, Esq., Buxar		3	49
C. H. Denham, Esq., Howrah			15
A. E. W. Sharpe, Esq., Calcutta			24
R. Southby, Esq., Selim		4	45
Colonel Stanton, Calcutta		2	32
D. A. Sibthorp, Esq., "	i		6
A. Sanderson, Esq., Jubbulpore		1	4
E. Seebeck, Esq., Calcutta			1
E. G. Swinhoe, Esq., Ballygunge			100
D. B. Smith, Esq., Calcutta			100
J. A. Cassells, Esq., Bombay			1
Robert Cooke, Esq., S.S. <i>Mira</i>			8
Captain of the <i>Cape Bird</i>			7
W. Currie, Esq., Calcutta			25
Hon'ble H. A. Cookerell, Darjeeling.		1	7
E. C. Chester, Esq., Chittagong		17	500
General Cadell, C.B., Madras		3	87
W. M. Crocker, Esq., Borneo	2		85
Dx. H. Cayley, Calcutta			50
H. R. Cooke, Esq., "	2		36
J. Campbell, Esq., "			3
A. B. Cobb, Esq., U.S. Consulate, Calcutta	1		37
Messrs. Andrew Yule & Co., "			20
G. G. Anderson, Esq., "			30
Miss Adams, "			2
John Anderson, Esq., "			3
S. T. Apcar, Esq., Garden Reach			222
A. Apcar, Esq., Calcutta			3
Major Jarrett, "			4
Earl Fitzwilliam, London	2	2	196
Messrs. Wilson & Co., Calcutta			2
" Williamson & Co., "			14
Raja Kajnarain Hoy, "			20
Messrs. P. R. Naidoo & Co., Madras	2		02
Prince T. L. Sing, Deb Bahadoor, Cossipore			13
Baboo B. Oopadhya, Calcutta		8	60
" T. N. Banerjee "			12
" K. D. Sain, Berhampore			1
" K. C. Sain, "			9
" R. M. Mittra, Connaggur			2
" O. K. Dutta, Bally			35
" J. K. Mookerjee, TTerparah			12
" J. N. Pal, Caloutta			2
" J. N. Tagore, "			826
" J. G. Law, "			5
" G. P. Mookerjee, Goburdanga			1
" N. C. Roy, Calcutta			64
" G. C. Sain, Seebpore			1
" G. C. Mookerjee, Caloutta		16	499
" K. B. Mullick "			47
" B. C. Mullick, "			1
" B. B. Ghose, Taki			4
" M. A. Mitra, Caloutta			11
" P. C. Ghose, "			2
" D. N. Basu, "			6

APPENDIX H—concluded.

To whom sent.				Wudiui cases.	Boxes.	Number of plants.
Baboo D. N. Seal, Ghandernagore	...	...	...	...	...	11
„ D. N. Mulliok, Caloutta	...	...	...	...	...	5
„ S. P. Chatterjee, „	...	...	...	...	...	24
„ 8. N. Eoy, Mooradabad	...	...	...	...	1	6
„ P. C. Sein, Seebpore	...	...	...	...	...	41
„ 8. P. Paul, Albola	...	...	...	...	...	14
„ S. O. Bay, Bally	...	...	...	...	...	1
„ Rai 8. D. Narain, Caloutta	...	...	...	...	...	7-
Prince Noorodeen Ehan, Russapugla	...	...	...	...	...	16
Moulvi Fukeerwoollah, Lucknow	...	...	...	...	...	2
Momon, Hindusthani, Metabrooj	...	...	...	...	...	4
Sreenath, a native nurseryman, Caloutta	...	...	...	...	...	25
By public sale at the Exchange	„	...	...	...	...	500
Baboo A. M. Mookerjea	„	...	...	...	...	11
Total				65	280	17,270

APPENDIX III.

Statement of seeds received from 1st April 1880 to 31st March 1881.

From whom received.	Number of parcels or packets.
Sir J. D. Hooker, K.C.B.I., C.B., F.R.S., Royal Garden, Kew, London	46
Dr. Regel, Imperial Garden, St. Petersburg, Russia	264
Botanio Garden, Brisbane, Australia	96
Ditto, King's Town, 8. Africa	1
Ditto, Mauritius	11
Ditto, Java	26
Ditto, Jamaica	5
Ditto, Natal	2
Ditto, Sydney, Australia	30
Ditto, Ceylon	3
Ditto, Guneshkhand, Poona	2
Ditto, Saharanpore	51
Ditto, Darjeeling	196
Colonel Hawkes, Government Garden, Rangoon	1
Sir Ferdinand Von Muller, University, Melbourne, Australia	67
Queensland Acclimatization Society, Brisbane, Australia	33
W. Bull, Esq., Chelsea, London	2
John Ninet, Esq., Alexandria	5
John S. Page, Esq., Appoka, Florida, United States of America	8
John Kirk, Esq., M.D., C.M.O., H. B. M.'s Consul-General, Zanzibar	1
Duncan Carson, Esq., Sydney, Australia	28
J. Inglis, Esq., Sydney, Australia	42
G. F. Creswell, Esq., Melbourne	2
Messrs. James Yeitoh and Sons, Chelsea, London	1
J. S. Gamble, Esq., Conservator of Forests, Bengal	8
Conservator of Forests, North-Western Provinces	1
Superintendent, Lai Bagh, Bangalore	26
Agri-Horticultural Society, Lucknow	44
Ditto ditto, Madras	3
E. H. Man, Esq., Nicobar Islands	141
A. Parsons, Esq., Ajmere	11
Dr. Beaumont, Indore	6
Surgeon-Major J. J. Durant, Benares Opium Agency	1
Ditto, T. W. Sheppard, Behar Opium Agency	1
Messrs. Stanley Price & Co., Calcutta	84
Dr. Piloher, Howrah	1
S. E. Peal, Esq., Sibsagar, Assam	1
J. A. Cassels, Esq., Bombay	7
E. F. Blanford, Esq., Calcutta	1
Major J. dementi, Allahabad	2
Dr. M. Y. Slyn, Moulmein	1
Major-General Cadell, C.B., Madras	1
Dr. Bidie, Government Central Museum, Madras	1
B. Eardie, Esq., Calcutta	1
Major Abbot, Political Superintendent, Jhallawar	2
James Gammie, Esq., Government Cinchona Plantation	7
J. Li. Lister, Esq., ditto ditto	29
Baboo Bishumbhur Ghose, Seebpore	3
Total	1,266

APPENDIX IV.

Statement showing seeds distributed, from the Royal Botanical Garden during the year 1880-81.

To whom supplied.	Number of parcels or packages.
Sir J. D. Hooker, Royal Garden, Kew, London ...	86
Dr. Regel, Imperial Garden, St. Petersburg, Russia ...	1
M. le Directeur de Jardin des Plantes, Reunion ...	206
Signor Todaro, Botanical Garden, Palermo, Italy ...	11
Dr. Dickson, Régius-keeper, Botanical Garden, Edinburgh ...	31
G. S. Jenman, Esq., Botanical Garden, George Town, Demerara	275
Dr. Sohomburgh, F.R.S., Director, Botanical Garden, Adelaide, Australia ...	3
J. Horne, Esq., Botanical Garden, Mauritius ...	6
D. Morris, Esq., Director, Botanical Garden, Golden Spring, Jamaica ...	11
Dr. Treub, Director, Botanical Garden, Java ...	58
James N. C. Gibbon, Esq., Superintendent, Botanical Garden, Cape Town — ...	1
W. R. Guilefoyle, Esq., Botanical Garden, Melbourne • ...	1
J. M. Murton, Esq., Botanical Garden, Singapore ...	1
C. Moore, Esq., Director, Botanical Garden, Sydney ...	1
W. Hill, Esq., Botanical Garden, Brisbane ...	29
J. O. Nelson, Esq., Curator, Botanical Garden, King William's Town, South Africa ...	10
Henry Trimen, Esq., Botanical Garden, Ceylon* ...	67
A. Jameson, Esq., Botanical Garden, Ootacamund ...	3
J. Marshall Woodrow, Esq., Botanical Garden, Guneshkhanda, Poona ...	2
J. F. Duthie, Esq., Superintendent, Botanical Garden, Saharunpore Curator, Lloyd Botanical Garden, Daxjeeling ...	51 338
Colonel Hawkes, Government Garden, Rangoon ...	4
Sir Ferdinand Von Muller, F.R.S., University, Melbourne ...	2
James Cameron, Esq., Superintendent, Lai Bagh, Bangalore ...	3
John S. Pye, Esq., Florida, United States of America ...	9
M. Nandin, Villa Thuret, Antibes, France ...	9
M. Godfrey Lebeuf, Argenteuil, France ...	11
Secretary, Queensland Acclimatization Society, Brisbane, Australia	69
M. Linden, Ghent, Belgium ...	12
Messrs. Haage and Sohndt, Erfurt, Prussia ...	130
W. G. Head, Esq., Crystal Palace, London ...	9
William Bull, Esq., Chelsea, London ...	46
Inspector-General of Forests, Madras ...	1
G. A. Biohardflon, Esq., Assistant Conservator of Forests, Bhutan ...	1
Conservator of Forests, Poona, Bombay ...	1
G. W. Strettell, Esq., Deputy Conservator of Forests, Bengal, Calcutta	1
Conservator of Forests, North-Western Provinces ...	1
Ditto ditto, Nagpore ...	1
Assistant Conservator, Nandidrug Forest Division, Mysore ...	1
H. O. Hill, Esq., Conservator of Forests, Toungoo ...	1
Conservator of Forests, Baroda State ...	1
A. J. Mein, Esq., Assistant Conservator of Forests, Assam • •	1
G. A. Richardson, Esq., Assistant Conservator of Forests, Buxar	1
Narain Ballaoke, Esq., Forest Officer, Kolapur, Bombay ...	9
E. G. Chester, Esq., Assistant Conservator of Forests, Chittagong	2
Secretary to Government of Bombay ...	1
The Hon'ble Colonial Secretary, Jamaica ...	9
Sir G. McLeay, F.R.B., England ...	88
Honorary Secretary, Agri-Horticultural Society of the Punjab...	98
M. Ridley, Esq., Superintendent, Horticultural Garden, Luoknow	12
Secretary, Agri-Horticultural Society, Madras ...	3
Secretary, Agri-Horticultural Society of India, Calcutta ...	46
F. D. A. Vincent, Esq., Assistant Conservator of Forests, Punjab ...	2
Conservator of Forests, Bengal ...	2
Ditto ditto, Pegu circle ...	3
Ditto ditto, Tenassim, Moulemein ...	3
Fuel Superintendent, H. H. Nizam's State ...	7
H. L. Levinge, Esq., Secretary to Government of Bengal, Public Works Department ...	2
J. Robinson, Esq., District Engineer, Bhagulpore ...	43

APPENDIX IV—*continued.*

To whom supplied.	Number of parcels or packages.
Executive Engineer, Military Works, Fort William, Calcutta ...	1
Ditto ditto, Barrackpore ...	1
Ditto ditto, Darjeeling ...	1
Ditto ditto, Allahabad ...	1
Ditto, Jhansi ...	1
Ditto, Military Works, Luoknow ...	1
Ditto, ditto, Saufor ...	1
Ditto, Eastern Soane Division, Dinapore ...	1
District Engineer, Rungpore ...	5
Executive Engineer, Buxar ...	13
Major H. B. Abbott, Political Superintendent, Jhalrapatan ...	11
G. Maries, Esq., Superintendent of Gardens, Durbhunga Raj ...	232
A. Parsons, Esq., Ajmere, Bajputana ...	17
Dr. S. Beaumont, Indore ...	44
John Ninet, Esq., Alexandria, Egypt ...	3
M. Theodore, Algiers ...	2
James Inglis, Esq., Sydney, Australia ...	156
J. E. Edwards, Esq., Bushire ...	1
T. S. Pearse, Esq., Sydney ...	4
M. li. E. Chevalier, Rome ...	1
J. J. M. Fleury, Esq., Assistant to Consul for the Netherlands, Penang ...	73
G. A. Whitten, Esq., Fiji ...	4
Messrs. James Yeitch and Sons, Chelsea, London ...	38
P. Brown, Esq., Coonada ...	1
A. M. Boss, Esq., Nellore, Madras ...	5
Superintendent, Government Farms, Madras ...	1
Dr. Bidie, Central Museum, Madras ...	1
J. L. O. Hullaren, Esq., North Wynaad, Madras ...	3
Messrs. Stanley Price & Co., Calcutta ...	3
Colonel F. S. Staunton, „ ...	19
H. A. Cockerell, Esq., c.s.i., „ ...	82
Messrs. Octavius Steel & Co., „ ...	6
J. Monro, Esq., Darjeeling ...	3
Augustus P. Webb, Esq., Meerut ...	11
W. Kneebone, Esq., Silligori ...	2
Dr. B. Laws, Nyaua, Zanzibar ...	1
Dr. C. J. Peters, „ ...	1
B. W. Murray, Esq., Katherine Biver, Port Darwin ...	2
His Highness Maharajah Kama Yarma, Travanoore „	1
C. Grant, Esq., Judicial Commissioner, Soinde ...	1
Bev. W. S. Howland, Madura ...	1
E. Welldon, Esq., Trinoomalee ...	j
Captain Bailey, Galle ...	5
W. Bontein, Esq., Lahore ...	j
H. F. Blanford, Esq., Meteorological Reporter with the Govern- ment of India ...	174
Surgeon-Major W. D. Stewart, Outtaok ...	1
Collector of Cuttaok ...	1
E. E. Dessa, Esq., Cuttaok ...	4
Political Agent, Kolhapoor estate ...	1
W. Peppe, JEsq, Arrah ...	j
T. F. Peppe, Esq., Shahabad ...	1
A. W. Cosserat, Esq., Nya Doomka ...	1
D. Lamb, ES^L, Hazareebagh ...	1
J. C. Veasey, Esq., Baokergunge ...	1
J. O'Brien, Esq., Shillong ...	1
Dr. G. Henderson, Bawai Pindi ...	1
A. W. B. Power, Esq., Lohardugga ...	1
District Superintendent of Polioe, Jhansi ...	1
His Highness Maharajah of Benares ...	2
A. A. Shiroore, Esq., Jalandar ...	4
Baboo Bejoy Madhub Banerjee, Sopal ...	2
B. Pantling, Esq., Botanical Garden, Calcutta ...	1
Baboo Gayiendra Kumar Bai, Takee ...	1
Baboo Brojo Lall Ghose, Lahore ...	1
J. Gammie, Esq., Darjeeling ...	2
B. Mosley, Esq., Berhampore ...	1
W. Biss, Esq., AUahabad...	10

APPENDIX IV—concluded.

To whom supplied.			Number of parcels or package*.	
C. H. Moore, Esq., Allahabad	1
Major A. J. C. Birch, commanding 35th N. I., Allahabad	1
Colonel Clay, Deoli, Rajputana	1
H. Gk French, Esq., Dinagepore	3
Baboo Qirish Chunder Mookerjee, Calcutta	5
Major J. Li. Mackenzie, Deputy Commissioner, EUiohpur	1
Colonel O. B. Loioie Smith, Commissioner, Chattisgarh, O. P.	1
Colonel Haughton	63
Messrs. Colvin, Cowie & Co., Caloutta...	1
Baboo A. S. Mitra,	2
Messrs. Jardine, Skinner & Co.,	1
H. W. Newton, Esq.,	1
Colonel Hawkes,	49
Messrs. Ede and Hobeon,	7
„ Andrew Yule & Co.,	1
„ Stanley Price & Co.,	22
Baboo Bonomally Kundu, Burdwan	1
Prince Nooroodeen Khan, Russapugla	2
Baboo Bissumbhur Qhose, Seebpore	2
P. J. Barr, Esq.	100
J. Hill, Esq., Yeotmal, C. P.	1
C. Mundy, Esq., Seebpore College	90
V. Teusoher, Esq., Java	1
Y. Elworthy, Esq., Assam	2
Captain B. O. Llojd, R.E., Thayet Myo	1
Total			...	3,224

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN, CALCUTTA, FOR THE
YEAR 1881-82.

No. 26G, dated Seebpore, the 14th July 1882.

From—GEORGE KING, ESQ., M.B., Superintendent, Royal Botanic Garden, Calcutta,
To—The Secretary to the Government of Bengal, Financial Department.

I HAVE the honour herewith to submit the ninety-fifth annual report of the
Royal Botanic Garden.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN, CALCUTTA,
FOR THE YEAR 1881-82.

DURING the year considerable progress was made towards completing the changes and improvements in the garden that have been in progress for the past few years. A large piece of ground to the south of the avenue leading to the great banyan-tree was laid out. From a lake cut out in the middle of this ground sufficient earth was got to raise the level of the whole of remainder, and to form in part of it a series of gentle undulations. The landscape effects in this piece of ground are now very good. At the opposite end of the garden finishing touches were put on some work of a similar sort which remained % uncompleted at the end of the previous year. Similar minor improvements were also effected in various parts of the grounds. The formation of a boundary canal along the western limit of the garden has been pushed on; a good deal, however, still remains to be dug before this useful work is complete. Various garden roads were metalled and others were repaired, the bricks necessary for road-making having been all burnt within the garden. In the construction of new buildings there has also been some activity. Some time ago Government sanctioned the cost of a new conservatory for palms, tree-ferns, and other tall-growing equatorial plants, for which the temperature of our cold season is too low out of doors, and for which there is no accommodation in the older low-roofed conservatories. The materials for this house (iron) having been received towards the end of the year, a beginning was made in putting them together. The new conservatory promises to be a useful and handsome building, but some time must necessarily elapse before it can be filled with plants. Proper accommodation for the garden herbarium and library has long been a desideratum, the building in which they are at present located being small, inconvenient, and leaky. The foundations of a new and commodious building especially designed for herbarium work were laid towards the end of the year, and a few months should see its completion. A new propagating-house has been erected, and the tool-shed and carpenter's shop, both of which were much damaged by a storm early in the year, have been put into thorough repair. Lastly, pipes have been provided for connecting by underground channels the various ornamental lakes in the garden, so that the water in them may be kept at a uniform and high level by a steam-pump to be located on the river-bank. Keeping these lakes full of water will undoubtedly be a great improvement as regards both the beauty and the healthiness of the grounds.

2. The grants of money made by Government during the past few years having been on a liberal scale, the garden has practically been remade. It is now a beautiful and shady park, traversed by numerous driving-roads and foot-paths, and containing many beautiful and instructive specimens both of Indian and of exotic plants. In it there is now provided for the population of Calcutta an admirable means of instruction and recreation. It seems therefore a pity that the garden remains so inaccessible from Calcutta. The new over-bridge across the railway at Howrah has no doubt shortened the distance to some extent, but, after crossing the bridge, the route to the garden lies through the tortuous and narrow bazars of Howrah and Seebpore. The road now being constructed by the Port Commissioners from Howrah to Shalimar Point, running as it does close by the river for the most of its course, promises to form a very fine drive. But as at present designed, this road ends in a *cul-de-sac* at Shalimar, and is of no use as an approach to the garden. Were this road, instead of

ending at Shalimar, to be continued in front of the engineering workshops and college to the garden gate, the route from Calcutta would be vastly shortened and improved. This extension of the river-bank road would be a great public improvement, and I trust it may soon receive the attention of Government.

3. *India rubber*.—Ceard rubber continues to grow well here. Our trees are now beginning to seed, and from their produce I was able to distribute during the year a good many seedlings to tea-planters in Assam, Chittagong, and elsewhere. A species of *Laridolphia*, which is one of the sources of the rubber collected in Eastern Africa, has (thanks to the exertions of Sir John Kirk, Her Majesty's Consul-General at Zanzibar) been introduced to the garden. From the seeds sent by Sir John Kirk a number of young plants have been raised[^] and these at present look very healthy. The cultivation of the plant yielding Pard rubber (*Hevea Brazttiensis*) has been abandoned, as the Bengal climate proves quite unsuitable for it. Of *Castilloa*, another South American rubber-yielder, we have as yet only eight plants, but it is being propagated as fast as possible.

4. *Materials for paper*.—The subject of the utilisation of plantain fibre as a raw material for paper-making has engaged attention during the year. It has been found that, during the dry months, simple exposure of the sliced stem to the sun is sufficient to prepare the fibre for the paper-maker, provided the paper-mill be on the spot. What is still wanted is some cheap mode of removing the useless cellular tissue, so that the fibre may be shipped to England without the risk of fermentation during the voyage. The cultivation of the plantain for its fruit is so universal over the warmer and damper parts of India, and its growth is so rapid, that the conversion into a marketable commodity of the stems, at present thrown away as useless, would be an appreciable addition to the wealth of the country. The matter is therefore one deserving of attention. Another fibre-yielding plant that merits attention is the paper mulberry of China and Japan (*Broussonetia papyri/era*). The bark of this tree yields one of the best paper fibres known, and it is naturally so white that it requires very little bleaching. Having procured seeds of this plant from Burmah (in some parts of which province it grows wild) and from seedsmen in Europe, the cultivation of this plant is now being tried in this garden and at the cinchona plantation in Sikkim. For reasons explained in former reports, I have not recently given attention to the utilisation of immature bamboo as a paper fibre. I understand that a practical trial is being given to this industry in Burmah by some English capitalists. The results will therefore probably soon be before the world. A plant known in the North-West Provinces as *bhabur ghas*, and botanically as *Eriophorum comosum*, was formerly reported on by me as a hopeful paper material; but the cost of carriage from the North-West Provinces precluded the idea of its ever being exported as such to Europe. Leaves of a plant which are very like those of *Eriophorum* were found last cold season growing rather abundantly in the dry forests of Chota Nagpore by Mr. Gamble, Conservator of Forests. [^] Mr. Gamble having at my request kindly supplied me with some hundred-weights of these leaves, I made them over to the Bally Paper Mills Company for trial, and they were most favourably reported upon. The leaves were collected during the cold season, and no flowers could then be found by which the plant could be botanically identified with certainty. The identification will be made during the approaching rainy season; but I believe the leaves to be those of *Eriophorum*. And as Chota Nagpore is so much nearer Calcutta than the North-West Provinces, I think it probable that their Conveyance to Calcutta may not be so costly as to prohibit their export to Europe as a raw material for paper fibre. It still remains to be learnt what quantity the Chota Nagpore forests are likely to be able to yield, and the quantity available is rather an important point in determining the feasibility of introducing a new fibre to the market as a raw material for paper. *Eriophorum* is not very far behind *Esparto* in its yield of dry fibre, while the fibre yielded is about equal to that of *Esparto* in strength.

5. *Other economic plants*.—Mahpgany and rain-tree still continue in demand, and considerable indents, both for seed and plants of these, have been met during the year. Seeds of Divi Divi, the pods of which yield an admirable

tan, were distributed so far as the produce of our trees allowed. But from the slow growth of the tree in Bengal, I doubt whether its cultivation is likely to prove profitable in this province.

6. *Herbarium*.—The collection of dried plants has been considerably extended during the year. From Collectors in the Malayan Peninsula and Archipelago large and important contributions have been received. The Director of the Botanic Garden at Buitenzorg in Java contributed some plants, as also did the Superintendent of the Botanic Garden at Hong-Kong. To Mr. Gamble, Conservator of Forests, I am indebted for collections from Sikkim, Chota Nagpore, Orissa, and the Sunderbuns; and to Dr. Schlich, Inspector-General of Forests, for some plants from the North-Western Himalaya. Mr. Fisher, of the Forest Department in Assam, sent collections from that province; while Colonel R. H. Beddome, late Inspector-General of Forests in Madras, made some interesting contributions of plants collected in the little-explored hill ranges of the south of that presidency. Colonel Collett, C.B., of the 23rd Pioneers, sent some most interesting plants collected near Kohima in the Naga Hills, and also communicated a small collection made near Quetta by Dr. Hamilton, of the Army Medical Department. To Sir J. D. Hooker, F.B.S., Director of the Royal Garden Kew, the herbarium is indebted for sets of the plants collected during the recent Afghan Expeditions by Dr J. T. Aitchinson, who was attached to General Roberts' force as botanist. Dr. G. Watt, of the Educational Department, sent a set of plants collected by him at high levels in Western Sikkim; and to the Reverend Mr. Heyde, of the German Mission at Ladak, I am indebted for a most interesting set of plants from that region. Mr. Ellis, of the Forest Department, also contributed many plants from Pangl.

7. *Interchange of plants and seeds*.—The issues of living plants for the year exceed considerably those of the previous years, 23,939 plants having been distributed. These were for the most part given to station committees, cantonment magistrates, superintendents of hospitals and jails. On the other hand, plants to the number of 9,786 were received from various contributors. In the Seed Department the issues were 3,303 packets, and the receipts 883 packets. The contributors to whom the gardens are chiefly indebted are Sir J. D. Hooker, C.B., K.C.S.I., F.R.S., Director of the Royal Garden, Kew; the Directors of the Botanic Gardens of Buitenzorg (in Java), Ceylon, Hong-Kong, Melbourne, Demerara, and Jamaica; the Superintendents of the Government Gardens at Baharunpore and Ootacamund; Mr. J. L. Lister, late of the Government Cinchona Plantation, and Mr. A. Simson, Calcutta; Messrs. Veitch and Sons, London; William Bull, London; and M. Linden, Ghent; Major Berkeley, Andamans; Mr. Phillips, of the Assam Tea Company; Babus P. C. Sein, Seebpore, and S. P. Chatterjee. To Messrs. Apcar & Co. my best acknowledgments are due for their generosity in giving free freight by their steamers to a large number of plants from the Malayan Archipelago.

8. *Official changes*.—Early in the year the long-vacant appointment of the Curatorship of the Herbarium was filled by the arrival of Mr. L. J. K. Brace, a gentleman selected by Sir Joseph Hooker. Mr. Brace is devoting himself to his duties with much assiduity and enthusiasm, and he has already made considerable progress in reducing the arrears that had necessarily accumulated since Mr. Kurz's death, three and a half years ago. Mr. R. Pantling, Curator of the Garden, having fallen into indifferent health, it was considered advisable to transfer him to the cinchona plantation. His place as Curator was taken by Mr. J. Craig, Assistant Curator. Mr. Craig has worked with praiseworthy energy, but the duties are too heavy for a single man, and I trust that the new Assistant Curator engaged in England by the Secretary of State may soon arrive.

9. The budget allotment for the year (including special grant for garden improvements) was Rs. 75,200, and the whole of that sum was spent. The receipts from the sales of plants and seeds amounted to Rs. 2,316-6-4, and were paid into the treasury as Government revenue.

10. *Lloyd Botanic Garden, Darjeeling*.—The year was rather a disastrous one for the Darjeeling garden. The erection of the new hospital on the top of the hill above the garden necessitated the cutting of a large quantity of earth and rock, and during the rainy season large quantities of this *dibris* repeatedly

slipped down into the garden, overwhelming flower-beds, grass-plots, and roads, and uprooting trees. By one of these avalanches the municipal vegetable garden was completely submerged, and for half the year no vegetables were available for the supply of the residents in the station. In addition to these misfortunes, the grubs of a cock-chaffer appeared in the soil in hundreds of thousands, eating up the roots of every thing within their reach. Only the largest trees and the plants in pots escaped these voracious creatures. About three millions of them were collected and killed ; the rest obtained their full development and flew away. The Curator, Mr. Jaffrey, worked well under these trying circumstances, and by the beginning of the year now entered on he had managed to have the *débris* cleared away, the grass replanted, and a number of plants taken from pots and put out in the open ground to replace some of those that had been destroyed. The conservatory, of which the erection was completed during the previous year, is now well stocked with plants, and presents really a fine appearance. The water-supply of the garden was, after many delays, completed late in the year. The drains to catch the water from the hill above the garden, which the municipality have for so long promised to make, are still unmade. Until sufficiently large stone drains are built, the garden will continue to be liable to occasional invasions of fluid mud, and I trust their construction will be hurried on. The most useful work carried out in connection with the Darjeeling garden during the year was the acclimatisation of a large quantity of the best English potatoes. This work was not all done by Mr. Jaffrey at the garden, but was shared by Mr. Gammie at the cinchona plantation. Messrs. Gammie and Jaffrey were very successful in raising potatoes from the imported sorts, and these acclimatised potatoes were distributed gratis both to European tea-planters and to native cultivators in all parts of the district. The good effects have already become apparent in the greatly improved quality of the potatoes offered for sale in the bazar during the current season. The budget allotment of the Lloyd Botanic Garden amounted to Rs. 12,208, and was all spent. This included a special sum granted on account of the water-works. The receipts from the sale of plants were Rs. 345-12 : these were paid into the Government treasury.

11. The usual statements of seed and plant distribution are appended.

APPENDIX I.

Statement showing plants received from 1st April 1881 to 31st March 1882.

From whom received	Wardian Cases.	Boxes.	Number of plants*
Royal Garden Eew, London ...	7	1	254
" Botanical Garden, Ceylon ...	2	...	54
Botanical Garden, George Town, Demerara ...	3	...	428
" " Jamaica ...	1	...	60
" " Buitenzorg, Java ...	3	1	151
" " Natal ...	1	...	47
" 9, Hong-Kong ...	1	...	18
" " Saharunpore ...	...	...	2
Government Garden, Ootacamund ...	...	1	4
Public Garden, Rangoon ...	...	1	8
Agri-Horticultural Society, Calcutta ...	...	...	3
Chief Commissioner, Central Provinces ...	...	1	7
Raffle's Institute, Singapore ...	2	...	55
J. S. Lister, Esq., Government Cinchona Plantation ...	...	30	1,005
" Edinburgh ...	...	...	15
H. B. Cooke, Esq., Calcutta ...	1	...	22
General B. Cadefi, C.B., Madras ...	...	1	5
Major Wimberly, Andamans ...	1	...	14
Lieutenant-Colonel H. Collet, C.B., Naga Hills ...	...	2	37
M. J. Linden, Ghent, Belgium ...	1	...	31
Messrs. Veitoh and Sons, London ...	...	1	4
W. Bull, Esq., London ...	1	2	157
Sir George McLeay, London ...	1	...	43
Dr. T. Beaumont, Hyderabad ...	...	1	5
T. Bromley, Esq., Burmah ...	...	1	60
Alex. Grey, Esq., Sourabaya, Java ...	1	...	31
Major Berkeley, Andamans ...	1	3	284
G. E. L. Bartlett, Esq., Calcutta ...	...	...	25
G. H. Gilbert, Esq., Rangoon ...	...	2	92
Dr. G. Griffith, Dinapore ...	...	2	42
W. Marshall Woodrow, Esq., Poona ...	...	1	12
B. B. West, Esq., Calcutta ...	...	...	21
Dr. G. Watt, Mcinipur ...	...	...	2
H. O. Forbes, Esq., Sumatra ...	...	1	15
H. A. Firth, Esq., Garden Reach ...	...	...	16
B. A. Donnithorne, Esq., Howrah ...	...	...	1
C. Maries, Esq., Durbhunga Raj Gardens ...	...	3	483
J. H. Morris, Esq., C.B., Paohmari, Central Provinces ...	...	1	5
W. A. Campbell, Esq., Chittagong ...	...	3	300
A. Simson, Esq., Chittagong ...	...	24	336
P. M. Lowther, Esq., Howrah ...	...	...	1
Dr. L. 8. Sanders, Chittagong ...	...	2	53
A. Apoor, Esq., Garden Reach ...	...	...	3
8. T. Apoor, Esq., Calcutta ...	...	...	1
Dr. J. Anderson, Bunnah ...	...	1	48
H. Pallett, Esq., Howrah ...	...	...	1
A. Parsons, Esq., Ajmere ...	...	2	88
J. Phillips, Esq., Assam ...	...	12	119
J. Ridley, Esq., Lucknow ...	...	1	60
H. Rimmen, Esq., Andamans ...	...	...	27
H. Wood, Esq., Calcutta ...	...	...	4
Collected by Superintendent in Darjeeling ...	...	32	1,552
" " Hen Kunstler in Penang ...	79	10	3,254
" " B. Pantling in Sikkim ...	...	3	145
If. LeBoeuf, Argenteuil, Paris ...	...	3	81
Baboo Okhoy Coomar Dutt, Bally ...	...	...	1
" P. O. Sen, Seebpore ...	...	...	166
" 8. P. Chatterjee, Calcutta, ...	...	1	46
Prince Nooruddeen Khan, Bussapagla ...	...	...	12
Total ...	106	150	9,790

To whom sent.	Wardim cases.	Boxes.	Number of plants.
H. R. H. The Prince of Wales, London	...	3	138
Her Excellency the Marchioness of Ripon	...	1	19
Belvedere Garden, Alipore	13
Commissioner and Conservator of Forests, Ajmere	...	5	344
Chief Commissioner, Burmah	...	8	Eight manna seed potatoes.
Commissioner of Burdwan	50
Additional Commissioner, Lahore	...	3	42
Extra Assistant Commissioner, Nowgong	...	2	50
Assistant " Jorhat	...	2	39
Deputy " Sandoway	...	2	18
" " Chyebassa	...	1	24
Royal Botanic Garden, Ceylon	...	1	83
" Garden, Ke w, London	...	4	125
Botanical Garden, Jamaica	...	2	121
Botanic Garden, Natal	...	2	77
" " Hong-Kong	...	1	107
" " Singapore	...	2	68
" " Saharunpore	...	2	128
Lloyd Botanical Garden, Daijeeling	...	1	28
Government Garden, Ootacamund	...	3	155
Eden Garden, Calcutta	100
Zoological Garden "	381
Agri-Horticultural Society, Calcutta	98
Horticultural Garden, Lnoknow	...	4	80
M. LeBoeuf, Paris	...	4	238
M. Louis Van Houtte, Ghent, Belgium	...	1	46
M. J. Linden, Ghent, Belgium	...	5	158
W. Bull, Esq., Nurseryman, Chelsea, London	...	1	45
Messrs. Haage and Schmidt, Erfurt, Prussia	...	2	48
Colonial Secretary to the Government of Mauritius	...	13	400
Consul-General for Sweden and Norway, Caloutta	52
Consul-General for Italy, Caloutta	55
" " " XI. 8. Amerioa, Calcutta	40
Officiating Collector, Balasore	...	1	17
Cantonment Magistrate, Dinapore	...	10	253
" " " Dum-Dum	200
Magistrate and Chairman of Municipality, Monghyr	...	1	20
Lower Circular Road Cemetery, Calcutta	200
Mission House, Barrackpore	50
" " Aggurparah	150
St. Paul's Mission House, Calcutta	1
Cathedral Mission School "	60
Moorgheehatta Cathedral "	5
Fort William, "	1,009
Sub-Divisional Officer, Giridi	...	3	417
Settlement Officer, Cuttaok	...	1	12
Forest Officer, Khorda, Orissa	...	4	100
Director of Public Instruction, Rangoon	...	1	23
Secretary to the Government, Settlement Department, Rangoon	200
Krishnaghur College	600
Superintendent, Small Arms Ammunition Factory, Dum-Dum	50
General Hospital, Caloutta	39
Surgeon-Major J. G. Piloher, Howrah	4
Howrah Hospital	20
New Terai Association, SiUiguri	...	6	60
Pattajhora Tea Estate, Julpaiguri	...	8	97
Northern Bengal State Railway	...	4	196
East Indian Railway Station, Nalhati	...	4	1,000
South-Eastern State Railway	...	9	2,000
State Eailway, Tirhoot	...	1	1,060
United Service Club, Calcutta	4
Superintendent, Central Prison, Benares	...	5	125
" M Jail, Buxar	...	3	500
" Jail, Furreedpore	...	1	14

APPENDIX II—continued.

To whom sent.	Wardian cases.	Boxes.	Number of plants.
Municipal Corporation, Calcutta	65
„ Commissioners, Howrah	383
Magistracy, Howrah	191
Agent, Chartered Bank of India	...	4	67
Pussewah Factory, Jounpore	...	1	17
Civil Surgeon, Benares	...	12	150
„ Chittagong	...	3	50
Executive Engineer, Midnapore	2,000
For the Maidan, Calcutta	616
Government Cinchona Plantation, Darjeeling	...	3	113
Superintendent, Durbhunga Raj Gardens	...	17	2,396
S. T. Apar, Esq., Calcutta	56
J. B. Archer, Esq., Bhagulpore	...	4	80
lieutenant-Colonel R. F. Angelo, Commandant, Chunar	...	4	48
A. Apoar, Esq., Garden Reach	59
J. G. Bromley, Esq., Calcutta	24
Major E. Berkeley, Port Blair, Andamans	...	1	42
S. Bird, Esq., Calcutta	5
C. T. Buokland, Esq., London	...	2	64
G. Bartlett, Esq., Calcutta	71
T. Beaumont, Esq., M.D., Seoundrabad	...	1	56
Sir E. Brady, Bart, Dublin	1	...	36
J. Connor, Esq., c.E., Bhagulpore	...	4	80
Dr. D. D. Cunningham, Calcutta	78
Commander of the Ship <i>Mount Stuart</i>	12
Hon'ble H. Crocker, Sarawak	...	2	73
W. Cantwell, Esq., Calcutta	100
Hon'ble H. S. Cunningham	21
J. Calvert, Esq., Garden Reach	...	2	34
Captain of the S. S. <i>Banhoora</i>	15
H. E. Cooke, Esq., Calcutta	16
M. C. Compté Gilbert des Voifins, Marseilles	...	1	31
H. Doran, Esq., Howrah	53
M. C. J. Dumaine, Chandernagore	...	2	276
Dhunfee Ohoy Edulphii, Calcutta	2	...	82
Miss Fendall, Calcutta	37
M. A. Faioille, Chandernagore	2
H. Wilson, Esq., Sourabaya, Java	1	...	33
Colonel E. C. Impey, C.I.E., London	...	1	45
G. Griffith, Esq., JDinapore	...	3	100
T. Greenhill, Esq., Calcutta	12
G. B. Groves, Esq., Julpaiguri	...	1	72
C. Gilxnore, Esq., Seebpore	12
A. Gunn, Esq., Singapore	1	...	105
T. H. Hollway, Esq., Madeira	3	...	69
W. Hart, Esq., Calcutta	21
H. G. Heins, Esq., Calcutta	5
A. O. Hume, Esq., c.B., Simla	...	3	74
— Heriot, Esq., Calcutta	13
Postmaster-General, Bengal	25
A. M. Jackson, Esq., Str. <i>Undaunted</i>	24
Mrs. Johnson, Hazaribagh	...	2	230
W. Jordan, Esq., Calcutta	10
J. Jorfan, Esq., Howrah	64
B. B. West, Esq., Calcutta	137
Captain Warden, „	36
A. Whyte, Esq., Raneegunge	...	1	10
H. Wood, Esq., Calcutta	6
Major Wimberley, Port Blair	1	...	35
Mrs. Walker, Calcutta	10
A. J. Wilson, Esq., Calcutta	12
T. Wharton, Esq., Allahabad	...	1	6
G. Whitten, Esq., Fiji	1	...	30
Dr. G. Watt, Manipur	...	5	104
Mrt. Watkin, Allahabad	...	1	10
Messrs. Williamson, Magor and Co., Calcutta	...	2	24

APPENDIX II—continued.

To whom sent.	Wardian cases.	Boxes.	Number of plants.
Sandford Kilby, Esq., Calcutta	174
G. W. Kraal, Esq., Calcutta	10
G. Keit, Esq., Natal	24
A. Linberry, Esq., Kurseong	...	1	21
T. Nickels, Esq., Calcutta	6
—Enmiff, Esq., „	11
A. Thomson, Esq., „	200
J. Morrison, Esq., London	1	...	37
G. H. S. Mayer, Esq., Seebpore	20
G. P. Martin, Esq., Seebpore	2
H. J. Murton, Esq., Singapore	1	...	62
F. A. Moller, Esq., Titalyah	...	4	66
B. B. McPhun, Esq., Calcutta	130
W. A. MoLeod, Esq., S.S. City of Edinburgh	3
J. Marsden, Esq., Calcutta	3
Sir George MoLeay, London	1	2	64
Miss Mulvany, Calcutta	36
Edward Mansfield, Esq., Singapore	1	...	40
A. B. Miohell, Esq., Rangoon	...	1	12
A. Mears, Esq., Jamalpore	...	2	59
G. D. Oswell, Esq., Calcutta	200
W. J. Goff, J. (Esq.)	1
Mrs. Plowden, „	4
J. T. Paterson, Esq., London	36
Dr. Payne, Calcutta	12
M. H. DePerry, Pondiohery	2
John Phillips, Esq., Nazira, Assam	...	5	135
Hon'ble W. C. Plowden	1	...	23
H. Peppe, Esq., Arrah	...	3	31
Dr. H. B. Purves, Dacoa	...	4	146
Captain Beeves, Barque <i>Umvoti</i>	2	...	70
—Robertson, Esq., Chandernagore	100
Dr. Raye, Calcutta	62
Hon'ble Sir H. Ramsay, O.B., K.O.B.	...	1	2
G. A. Robertson, Esq., Calcutta	2
J. Sohomburgh, Esq., „	27
Steward of S S. Nepal	8
A. Simson, Esq., Calcutta	875
Colonel Stanton, B.E., London	...	1	41
Dr. Shaw, Fiji	...	2	48
A. E. W. Sharpe, Esq., Calcutta	13
R. Souttar, Esq., „	100
D. M. Seit, Esq., „	12
R. Stack, Esq., Rangoon	10
C. Smith, Esq., Barque <i>Monk's Queen</i>	2
Messrs. Stanley Price & Co., Calcutta	6
J. E. Tuson, Esq., M.D.	12
E. 8. Vardon, Esq., „	4
Emigration Agent, Garden Reach	20
Government Workshops, Seebpore	52
Inspector-General of Railway Mail Service of India	150
Baboo A. Chatterjee, Seebpore	1
„ B. C. Dass, Batra	8
„ B. M. Kundoo, Bordwan	...	1	8
99 B. B. Ghose, Taki,	...	3	16
11 C. P. Bidyaratna, Hooghly	1
99 D. N. BMU, Calcutta	1
11 D. N. Siroar, „	8
19 Gt. Kandoo, Mohiarhi	8
99 Q. L. Mulliok, Calcutta	32
99 Q. G. Mookerjee, „	19
99 G. Mookerjee, „	1
99 Q. C. Singha, Dum-Dum	6
99 O. P. Mookerjee, Ooburdangah	21

A new cheap
route.

APPENDIX II—concluded.

To whom sent.	Wardian cases.	Boxes.	Number of plants.
Baboo H. C. Gangooly, Seebpore	7
„ J. Kundoo, Motihari	2
„ K. S. Sahoy, Calcutta.	...	3	24
„ K. N. Sein, Noparrah	...	3	25
„ K. D. Chokrobotty, Bhowanipore	1
„ G. G. Law, Caloutta	7
„ N» M: Bhattaoharjya, Seebpore	20
„ M. C. Dass, Kidderpore	4
„ O. K. Dutt, Bally	29
„ P. C. Mookerjee, Calcutta	4
„ P. C. Sein, Seebpore	10
„ P. C. Boy Chowdhari, Seebpore	13
„ R. Sohoy, Baghee	...	1	15
„ R. Malliah, Howrah	28
Bajah R. N. Roy Bahadoor, Caloutta	27
Baboo B. D. Sein, Caloutta	8
„ R. M. Gangooly, Seebpore	2
„ R. B. Boy, Seerampore	7
„ S. C. Chatterjee, Batra	3
„ S. D. Narain, Caloutta	33
„ S. C. Boy, Bally	8
„ S. P. Chatterjee, Caloutta	21
„ L. M. Sing, Chuckdige	12
Ex-King of Oudh, Garden Reach	7
Moulvie Allud Hossein, Jeypore	...	5	96
Messrs. P. Bamanjooloo Naidoo and 8<ms, Madras	1	...	40
P. Unnanjooloo Parahad, Caloutta	4
B. Khan, Nazirgunge	11
Shadhoo C. Samunto, Seebpore	8
Hurree, a native nurseryman, Caloutta	8
Total	46	239	23,939

APPENDIX III.

Statement of seeds received from 1st April 1881 to 31/ March 1882.*

From whom received.	Number of parcels or packets.
Sir J. D. Hooker, K.C.S.I., C.B., F.R.S., Royal Garden, Kew, London	12
Dr. Hegel, Imperial Garden, St. Petersburg, Russia	110
Director of Botanic Garden, Melbourne, Australia	9
Ditto, Ditto Hongkong, China	14
Ditto, Ditto Buitenzorg, Java	53
Ditto, Ditto Ceylon	3
Ditto, Ditto Jamaica	10
Ditto, Ditto Natal	3
Ditto, Ditto British Guiana	2
Ditto, Ditto Ootacamund...	6
Ditto, Ditto Saharunpore	31
Curator of Lloyd Botanic Garden, Darjeeling	10
Sir Ferdinand Von Muller, University, Melbourne, Australia	46
Agri-Horticultural Society, Punjab, Lahore	21
Ditto ditto, India, Calcutta	1
Ditto ditto, Lucknow	61
Director, Department Agriculture and Commerce, North-Western Provinces and Oudh, Cawnpore	3
W. Bull, Esq., Chelsea, London	2
Her Britannio Majesty's Consul-General, Zanzibar, Africa	4
Conservator of Forests, Bengal	»
Ditto ditto, Tenasserim Circle, British Burmah	10
Messrs. G. Brunning and Son, Nurserymen, St. Eilda Nurseries, Melbourne	2
Messrs. Woolson & Co., Passaic, United States of America	68
Messrs. Haa&e and Schmidt, Erfurt, Prussia	3
Messrs. Stanley Price & Co., Calcutta	44
Mr. Roberts, Nurseryman, Melbourne	102
Secretary to the Government of Bengal, Calcutta	1
Mr. Hodgeson, London	1
J. Ninet, Esq., Alexandria, Egypt	1
Herr Kunstler, Plant Collector, Malayan Peninsula	1
H. O. Forbes, Esq., Plant Collector, Sumatra	63
Messrs. Inglis, Nixon and Co., Sydney, Australia	3
J. A. Cassels, Esq., Bombay	1
Messrs. Williamson, Magor & Co., Calcutta	2
M. Sagot, Esq., Andamans	2
E. H. Man, Esq., * Andamans	2
G. Barton Groves, Esq., Dacca	1
A. Parsons, Esq., Agricultural and Garden Superintendent, Ajmere	5
F. Wilcox, Esq., District Superintendent of Police, Hazaribagh	2
James Gammio, Esq., Government Cinchona Plantation, Dar- jeeling	18
Baboo Hari Bilash Agurwala, Tezapore, Assam	2
J. L. Lister, Esq., Government Cinchona Plantation, Darjeeling..	160 *
Total	883

APPENDIX IV.

Statement showing seeds distributed from the Royal Botanic Garden during the year 1881-82.

To whom sent.	Niimbwctfijireeto *
Sir J. D. Hooker, F.R.S., Royal Garden, Kew, London ...	70
Sir Ferdinand Von Muller, F.R.S., University, Melbourne ...	4
Heir Max Leichten, Baden, Germany ... *	75
Captain Lawrenoe-Archer, Umberslade, Ealing Dean, Middlesex...	8
G. Arthur Whitten, Esq., Fiji Islands ...	1
Herr C. A. B. Moens, Bandong, Java ...	8
Revd. R. Swani, Nassan, N. P. Bahamas ...	20
Hon'ble W. Kirkwood, M.D., Nassan, N. P. Bahamas ...	142
H. A. Brook, Esq., Nassan, N.P. Bahamas ...	14
Herr Dr. Treub, Director, Botanic Garden, Buitenzorg, Java ...	10
Direotor, Botanio Garden, Honkong ...	13
Ditto ditto, Mauritius ...	22
Ditto Botanio Reserve, Bowen, Port Denison, Queensland ...	58
Ditto Botanio Garden, Ceylon ...	17
Ditto ditto, Ootaoamund ...	15
Ditto ditto, Saharunpore ... *	71
Curator, Lloyd Botanio Garden, Darjeeling ...	242
Superintendent, Model Farm, Nagpore, Central Provinces ...	1
Secretary, Queensland Acclimatisation Society, Brisbane, Australia ...	1
Secretary, Agri-Horticultural Society, Madras ...	2
M. J. linden, Ghent, Belgium ...	3
Secretary, Agri-Horticultural Society, Punjab, Lahore ...	76
Ditto Ditto, Lucknow ...	17
Ditto Ditto of India, Calcutta ...	23
William Bull, Esq., F.L.S., Chelsea, London ...	1
Messrs. James Veitch and Sons, Chelsea, London ...	5
„ G. Brunning & Son, St. Kilda Nursery, Melbourne ...	16
„ Haage & Schmidt, Erfurt, Prussia ...	1
„ Woolson & Co., Passaica, United States, America ...	5
„ G. H. Buchanan & Co., Bowen, Queensland, Australia ...	5
„ Thomson & Mylne, Beheea ...	118
Deputy Conservator of Forests, Rangoon...	4
Conservator of Forests, Bengal ...	2
Ditto, Poona ...	43
Commissioner and Conservator of Forests, Ajmere, Mherwar ...	30
Naryan Ballah Oke, Forest Officer, Kolapur, Bombay ...	4
J. Ninet, Esq., Alexandria, Egypt ...	193
Messrs. Grindlay & Co., Calcutta ...	20
„ Ootavious Steel & Co., Calcutta ...	6
„ Stanley Prieo & Co., Calcutta ...	86
„ IngUs, Nixon & Co., Sydney ...	2
Hon'ble A. B. Inglis, Calcutta ...	55
A. Simson, Esq., Calcutta ...	2
Surgeon-Major Cowie, M.D., Calcutta ...	5
Dr. S. O. Mackenzie, Caloutta ...	102
„ C. J. Hancock, Hilika, Debrugarh ...	1
„ D. O' C. Raye, Caloutta ...	77
Surgeon-Major W. D. Stewart, Cuttaok ...	1
Dr. J. G. Piloher, Howrah ...	5
Rajah Rani Narain Doss Bahadoor, Assistant Surgeon, Calcutta ...	1
M. L. Voisson, Vioe-Consul de Franoe, Khartoum, Egypt ...	61
M. le Chevalier Gailian, Italian Consul-General, Caloutta ...	13
8. E. Voigt, Esq., Consul for Sweden and Norway, Caloutta ...	12
John Kirk, Esq., M.D., Her British Majesty's Consul, Zanzibar, Africa ...	167
M. Hermann Soyaux, Gaboon, West Coast of Africa...	29
Hon'ble J. B. Thurston, Secretary to the Government, Fiji Islands	240
The Hon'ble the Colonial Secretary to the Government of Mauritius ...	6
Chief Secretary to the Government of Cyprus ...	8
H. C. Levinge, Esq., Secretary to the Government of Bengal, P. W. Department, Calcutta ...	8
Robert H. Harland, Esq., Assistant Secretary to the Government of Punjab, Lahore ...	12
G. Arthur Whitten, Esq., Fiji Islands ...	4
His Honor E. B. A. Taylor, Nassau, A-P., Bahamas ...	20

APPENDIX IV—continued.

To whom sent.	Number of parcels or packets.
Lieutenant-Colonel F. P. Luard, Garrison Quartermaster, Fort William	1
lieutenant-Colonel A. J. Colvin Birch, Peshawar	1
Major A. T. Bind, Deputy Assistant Commissary-General	6
Dr. George Watt, Kishnagur College	133
General Manager, Court of Wards' Estate, Dinapore	2
A. O. Hume, Esq., C.B., Rothney, Simla	17
J. W. Tyler, Esq., Superintendent, Central Prison, Agra	4
Civil Surgeon, Burrisal, Eastern Bengal	60
W. M. Souttar, Esq.	31
B. Id. Fizoni, Esq., Hazaribagh	1
Bey. Charles Kirk, Bajkote, Kattywar	10
Secretary to the Municipality, Howrah	14
T. F. Peppe, Esq., Arrah	116
-A. Maokie, Esq., Road Cess Committee, Lohaxdugga	1
^Dr. R. J. Quinnell, Superintendent of Jail, Gujranwala, Punjab	6
Sub-Divisional Officer, Giridi	37
James H. G. Hill, Esq., Chumparun	1
Major H. B. Abbott, Political Superintendent, Jhallawar, Rajpootana	32
Colonel Sladen, Commissioner of Arakan	5
A. H. Hildebrand, Esq., Akyab, North Arakan	11
A. P. Webbe, Esq., Barout, Meerut	3
M. R. Weld, Esq., South Arcot, Madras	4
J. Ware Edgar, Esq., Motihari	1
W. W. Daly, Esq., District Superintendent of Police, Caohar	45
Hugh C. Pinkerton, Esq., Alipore	8
A. Parsons, Esq., Ajmere	10
H. D. Vansittart, Esq., Mussoorie	1
J. Cooney Smith, Esq., Station Master, Kundwa, G. I. P.	13
Lama TJjyen Gyatsko, Sub-Inspector of Bhootya Sohool, Darjeeling	46
Baboo Pratab Narain Singh, Deputy Magistrate, Bankoora	1
„ Bonomally Kundoo, Burdwan	2
Dhunjioshey Eduljoe, Calcutta	40
Captain Keeves, Basque <i>Umvoti</i> , Calcutta	2
Henry M. Knight, Esq., Arundel Estate	4
C. J. Puddioombe, Esq., Manantoddy, Madras	1
Chas. J. Hancock, Esq., Hilika Tea Estate, Upper Assam	1
John S. Sealy, Esq., Peermeed Hills, Travanoore	1
E. T. Seally, Esq., District Engineer, Motiharee, Chumparun	20
District Engineer, Rungpore	5
Ditto, Bhagulpore	12
P. H. Brown, Esq., Local Fund Engineer, Cooonada	53
lieutenant-Colonel R. E. Money, Durbhunga	42
Superintendent of Gardens, Durbhunga	18
Colonel C. B. Luoie Smith, Commissioner, Chattishgarh	1
Government Cinohona Plantation, Mungpoo, Darjeeling	20
B. Slack, Esq., Nuddea	1
Rev. R. Winter, Esq., Chaplain, Delhi	5
E. J. King, Esq., Calcutta	181
Secretary to the Cantonment Committee, Deesa	8
Total	3,303

FINANCIAL DEPARTMENT.

AGRICULTURE.

YACHT "BHQTAS," THE 19TH AUGUST 1882.

EESOLUTION.

READ—

The Annual Report on the Royal Botanical Gardens, Caioutta, for the year 1881-82. The improvements in the Gardens, which were commenced some years ago, made considerable progress during the past twelve months. An ornamental lake has been excavated; a swampy tract of some size has been raised and properly laid out; several new roads and paths have been constructed; and some progress has been made with the western boundary canal. The new conservatory for palms and tree-ferns is in course of construction, and the foundations have been laid of a commodious building to replace the present herbarium and library. The Garden is now, in the words of the report, "a beautiful and shady park, traversed by numerous driving roads and footpaths, and containing many beautiful and instructive specimens, both of Indian and of exotic plants." Dr. King proposes that the road now being constructed along the river-bank between Howrah and Salimar Point, should be continued in front of the Engineering Workshops and College up to the gate of the Gardens. By this means a new and valuable approach would be provided, and the accessibility of the Gardens greatly increased. The proposal will be considered in the General Department of this Government.

2. The experimental cultivation of rubber-yielding plants was continued during the year. The Ceara rubber plant is reported to have thriven well, and to have yielded a number of seedlings for distribution. A species of *Landolphia*, which was forwarded by Sir John Kirk, Her Majesty's Consul-General at Zanzibar, has been successfully introduced, and is doing well. On the other hand, the Para rubber plant (*Hevea Braziliensis*) appears to have been a complete failure, and its cultivation has been discontinued.

3. Much attention has been bestowed on the question of utilizing plantain and other vegetable fibres for purposes of paper-making. Dr. King considers that what is required is some cheap method of removing the useless cellular tissue in order that the fibre may be transported without danger of fermentation setting in by the way. If this difficulty can be overcome, there is every reason to hope that plantain fibre will come into extensive use for this purpose. Experiments are being made with a view to the introduction of the paper mulberry of China and Japan (*Broussonetia papyri/era*) which yields one of the best paper fibres known. Excellent results were also obtained from the leaves of a plant which was found in Ghota Nagpore by Mr. Gamble, Conservator of Forests, and which is supposed to be the *Eriophorum comosum*, or "bhabur" grass common in the North-Western Provinces. The fibre of "bhabur" grass is well adapted for paper-making, and is nearly equal for this purpose to *Esparto* grass.

4. Considerable additions were made during the year to the collection of dried plants in the herbarium, the chief contributors being Sir J. D. Hooker, the Directors of the Botanic Gardens at Buitenzorg in Java and Hong-Kong, Mr. Gamble, Dr. Schlich, Colonel Beddome, late Inspector-General of Forests in Madras, Mr. Fisher, Colonel Collett, C.B., Dr. G. Watt, and Revd. Mr. Heyde of the German Mission at Ladak. Much activity was shown in the interchange of plants and seeds. During the year 23,939 living plants and 3,303 packets of seeds were distributed, the recipients being for the most part Station Committees, Cantonment Magistrates, and Superintendents of Hospitals and Jails. On the other hand, 9,766 plants and 883 packets of seeds were presented to the Gardens by various contributors. The office of Curator of the Herbarium, which had long been vacant, was filled up early in the year by the appointment of Mr. L. J. K. Brace, and since the close of the year to which the Report refers

a successor to Mr. J. Craig in the post of Assistant Curator of the Garden has been appointed by the Secretary of State. The new incumbent, however, has not yet arrived.

5. The Lloyd Botanical Gardens at Darjeeling suffered during the first part of the year from the operations necessary for the construction of the European Hospital in that station. The loosening of the surface soil; which was occasioned in the course of cutting away the top of the Hospital hill, brought about a succession of slips, and much damage was done to the Gardens by stones and other *debris*. In addition to this, the grubs of a species of cock-chaffer made their appearance and committed extensive ravages among the young plants. The Conservatory has been completed and filled with flowers, and now presents a handsome appearance. It is hoped that the stone-drains to catch the water from the hill above the garden will be completed by the Municipality during the current year.

6. The Lieutenant-Governor desires to acknowledge the continued excellent work done by Dr. King and his subordinates during the past year.

ORDER.—Ordered that a copy of the report and of the resolution be submitted to the Government of India, in the Revenue and Agricultural Department, for information.

Ordered also that a copy of the Resolution be forwarded to the Superintendent of the Botanical Gardens, for information.

Ordered also that paragraph 2 of the Report, with extract (paragraph 1) from the Resolution, be forwarded to the General Department of this Office for consideration and orders.

By order of the Lieutenant-Governor of Bengal,

COLMAN MACAULAY,

Secretary to the Government of Bengal.

No. 31RT—F.

COPT forwarded to the Superintendent, Botanical Gardens, for information.

By order of the Lieutenant-Governor of Bengal,

COLMAN MACATJLAT,

Secretary to the Government of Bengal

YACHT "RHOTAS,"

*The 19*4 August 1882.*

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN, CALCUTTA,
FOR THE YEAR 1882-83.

No. 32GK, dated Seebpore, near Calcutta, the 6th July 1883.

From—GEORGE KING, ESQ., M.B., Superintendent, Royal Botanic Garden, Calcutta,

To—The Secretary to the Government of Bengal, Financial Department.

I HAVE the honour herewith to submit the Ninety-Sixth Annual Report of the Royal Botanic Garden.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN, CALCUTTA
FOR THE YEAR 1882-83.

THE past year has seen the completion of most of the improvements in the garden grounds which were sketched out by me for the approval and sanction of Government in the year 1874. It may therefore not be out of place to give here a short *remrrrf* of what has been done, for during the nine Years that have elapsed since these proposals were submitted, the garden has been practically re-made. The whole extent of the grounds has been raised in level, the necessary soil having been obtained from large sheets of ornamental water which have been cut out. These artificial lakes have been connected with each other by underground pipes, and a steam pump has been supplied, by which the water in the whole system can be kept at a high level by means of water pumped up from the river. Numerous wide roads have been made—all through the garden—so that carriages may now be driven through every part of it. This is an improvement which is much appreciated, as the old restriction to driving acted to a great extent as a deterrent to visitors. Numerous foot-paths have also been made. The bamboo and mat erections, which used to do duty as conservatories, have been replaced by three large, handsome, and efficient structures of iron, on which a thin thatch of grass is spread, and under shelter of which tropical plants thrive admirably. The valuable collection of dried plants has been suitably housed in a handsome building designed by Mr. E. J. Martin, the Government Architect, the internal arrangements of which are to a considerable extent adapted from those of the new Herbarium building at Kew. New propagating houses, tool, and potting-sheds have been erected, and good dwelling-houses have been built for the members of the garden establishment, both European and native. A boundary wall and ditch have been partly built round the garden; and, finally, attempts at landscape effects have been made in the gardens, and the collections have been increased by considerable accessions of plants, both indigenous and exotic. The collections still, however, require strengthening in many important respects, and certain minor improvements ^till remain to be carried out before the garden is in the condition I should like to see it.

2. The garden still remains comparatively inaccessible to the public, and there can be no doubt the number of visitors would be largely increased were it connected with the new road recently made by the Port Commissioners along the river bank between the bridge at Howrah and Shalimar. At present this new road ends at Shalimar, and the end of it is not even connected with the old road to the garden, through Seebpore, so that for a visitor to this garden or to the Engineering College the new road is not only useless, but misleading.

3. *Economic Plants*.—Attention has been given during the year to various economic plants. The Ceara rubber tree has been propagated and distributed to a considerable extent. This species grows quickly, and thrives well. It is, however, rather easily blown down or broken by the wind, especially during wet weather. The seedlings of the Zanzibar rubber plant (*Landolphia*), for the introduction of which we are indebted to Sir John Kirk, are growing rapidly, and this species appears to have found a congenial home in Lower Bengal. Mahogany seedlings continue in steady demand. The paper mulberry (*Broussonetia papyrifera*) grows wonderfully well, and I am trying

into the soil of the pots. This grub is not new to the district. It is often found in soil near the sites of old grazing stations in the forest, and it not unfrequently does damage to native crops in the neighbourhood of these. The cockchaffer, of which it is the grub, appears thus to affect manure. And there is little doubt that the abundance of the grub in the Darjeeling garden is due to the fact that the whole of the hill above the garden is saturated with the sweepings and filth of the station, which the municipality continued, in spite of many protests, to bury there for long after the garden was formed. The alterations on the top of the hill, necessary for the preparation of the site for the Eden Sanitarium, were also a fruitful cause of injury to the garden. Heaps of loose debris were shot over the side of the hill from the hospital site, and during the past two years quantities of this debris have occasionally rushed down the steep slopes above the garden, carrying a proportion of the municipal manure with them and spreading themselves over large pieces of the garden. Mr. Jaffrey, the Curator of the garden, made vigorous efforts to conquer the grub, and about six millions were collected and destroyed by the gardeif labourers under his supervision. This plague now shows signs of disappearing; and as suitable means are at last being taken to prevent further slips from the hospital hill, the prospects of the garden for the year now entered upon are therefore decidedly brighter. The acclimatized English potatoes produced in the garden last year were largely distributed in the district for seed, and it is believed that the quality of potatoes in the district generally has, by these means, been to some extent improved. The budget allotment of this garden for the year was Rs^8,830, the whole of which was spent. The receipts, Us. 355-4-3, were paid in as Government revenue. Mr. Jaffrey has worked with much energy and pluck under disheartening circumstances, and he is now beginning to re-plant the denuded flower-beds and grassy slopes which two years ago looked so pretty.

11. The usual tabular statements of seed and plant distribution are appended.

APPENDIX I.

Statement showing Plants received from 1st April 1882 to 31st March 1883.

From whom received.	Wardian cases.	Boxes.	Number of plants.
Royal Garden, Kew, London *	2	.....	72
• Do. Botanical Garden, Ceylon	1	.....	35
Botanical Garden, George Town, Demerara	2	.....	130
Ditto, Jamaica	1	1	159
Ditto, Natal	3	1	51
Ditto, Hong-Kong	1	.....	92
Ditto, Singapore *	1	.....	15
• Lloyd Botanic Garden, Darjeeling	.....	29	341
• Zoological Garden, Calcutta	.....	.....	12
Agri-Horticultural Society, Calcutta	.....	.....	26
Compagnie Continental de Horticulture, Ghent	1	.....	42
J. 'Gaxmie, Esq., Government Cinchona Plantation, Mungpoo	1	3	400
Government Park, Barraokpore	.....	.....	450
Forest Officer, Darjeeling	.....	1	50
H. R. Cooke, Esq., Calcutta	.....	.....	20
E. H. Man, Esq., Andamans	4	7	433
lieutenant-Colonel H. Collet, C.B., Naga Hills	.....	2	100
Messrs. Veitch and Sons, London	1	.....	28
A. Wilson, Esq., Surabaya, Java	1	.....	26
G. H. Bartlett, Esq., Calcutta	.....	.....	19
G. H. Gilbert, Esq., Rangoon	.....	2	43
W. Marshall Woodrow, Esq., Poona	.....	1	3
E. J. West, Esq., Calcutta	.....	.....	140
Dr. G. Watt, Manipore	.....	1	54
„ T. Beaumont, Hyderabad.	.....	1	4
C. Maries, Esq., Durbhunga Raj Garden	.....	2	210
A. Simeon, Esq., Calcutta	.....	1	40
Mr. S. T. Apoor, Garden Reach	.....	.....	12
H. Pellet, Esq., Howrah	.....	.....	33
J. Phillip? & q., AH ^utta. •	.....	16	215
J. Barton-Grovec? Assam Ja	.....	4	26
Mr. Eales, Fiji Isq., Ketelli	1	.....	13
O. Mansfield, Esq.? - v Oatutta	1	.....	56
Kohira Tea Estate, 7 TM C ^{ful} ^ayo	.....	1	12
• R. H. Piloher, Esq., > C ^{ful} ^ayo	.....	3	90
W. T. Kemp, Esq., Nik. Hills	.....	2	48
W. T. Carapiet, Esq., Sif pore	.....	1	29
J. Fosterman, Esq., Naga: ills	.....	.....	2
T. J. Bowell, Esq., Singapore	1	.....	34
F. A. de Roepstorff, Esq., Ifnoobar Islands, Australia	1	-1	15
- Collected by the Superintendent in Sikkim	.....	.....	708
Ditto by Herr Kunstler in Malayan Peninsula	32	23	2,142
Ditto by B. Pantung, E^q., in Sikkim	.....	1	21
Ditto by J. Craig, Esq., Curator	.....	.....	105
3. Leslie, Esq., Assam	.....	2	2
Colonel Langton, Rangoon	.....	3	128
H. E. M. James, Esq., Calcutta	.....	.....	1
W- Kgott, Esq., Calcutta	.....	.....	12
J. Sohauknburgk, Esq., Calcutta	.....	.....	75
Messrs. Mackenzie, Lyall & Co., Calcutta	.....	.....	6
Purchased from Messrs. Maokinnon, Mackenzie & Co., Calcutta	.....	.....	228
Messrs. Soh'one, Kilburn & Co., Calcutta	.....	.....	193
H. Bltoford, Esq., Calcutta	.....	1	2
Baboo mV. Chattegee, Caloutta	.....	.....	37
A nurseryman, Caloutta	.....	.....	26
Collected by Bissoa, Dhangur oooly, in Chota Nagpore	.....	.....	62
Bought from villagers	.....	.....	49
Beoeived from unknown donor	.....	.....	12
Total	55	109	7,394

APPENDIX II.

Statement showing Plants sent out from 1st April 1882 to 31st March 1883.

To whom sent.	Wardian Canna.	Boxes.	Number of plants.
H. B. H. the Prince of Wales	1	.....	164
Commissioner of Daoca	1	9
" of Rungpore	1	7
Deputy Commissioner, Sonthal Pergunnahs	1	2
" " liohardugga	1	5
Commissioner of Orissa Division	1	10
Assistant Commissioner, Daltenganj, Palamow	2	64
Royal Botanical Garden, Ceylon	2	.....	72
" Garden, Kew, London	2	.....	112
Botanical Garden, (George Town, Demerara	3	.....	74 «
" " Natal	1	.....	32
" " Hong-Kong	2	.....	30
" " Saharanpore	16	364
" " Poonah	7	311
Lloyd Botanical Garden, Darjeeling	1	7
Zoological Garden, Alipore	409
Public Garden, Rangoon	1	.....	40
Eden Garden, Calcutta'	56
Agri-Horticultural Society, Lahore	1	21
" " Calcutta	70
Horticultural Gardens, Lucknow	5	94
Right Hon*ble Earl of Ilchester, London	1	31
His Grace Archbishop Goethels, Calcutta	3
Lord Charles Beresford, Calcutta «	78
Earl of Northbrook, London	1	43
W. Bull, Esq., nurseryman, London	2	.....	155
Messrs. Haake and Schmidt, Erfurt, Prussia	3	104
" J. Veitch and Sons, nurserymen, London...	3	.....	213
Colonial Secretary, Natal	2	.....	200
Magistrate and Chairman of the Municipality, Monghyr	1	20
Cantonment Magistrate, Dum-Dum	592
" " Barraokpore...	120
Sub-divisional Officer, Ferozepore	3	60
Commissary of Ordnance, Calcutta	100
Munsif of Madaripore	1	a
District Engineer, Baikergunge	12	410*
" " East Indian Railway, Howrah	350
Executive Engineer, Dibrugarh, Assam	3	45
" " BoodhGya	12	235
Secretary to the United Service Club, Calcutta	130
Roman Catholic Church, Assensole	13	430
Augurparah Mission House	200
Seamens' Floating Church, Calcutta	30
Ravenshaw College, Cuttaok	7	148
Bishop's Cplge, Calcutta	184
High School, Rangoon	2	30
Free Church Institution, Calcutta	100 "
Engineering College, Seebpore	470
Garrison Quarter-Master, Fort William	727
Executive Engineer, Barraokpore Military Works	5	112
Vice-Chairman of Municipality, Alipore	760
Meteorological Office, Calcutta	60
" Reporter to the Government of India	11
Economist * usam, Calcutta	60
High T Calcutta	100
Compti of Post Office, Calcutta	172
Calcutta idan for planting'	1,000
Munioipa. /, Howrah	268
Seebpore 1 dice Station	12
" Jute Mills	25
Office of East Indian Railway Mail Service, Howrah	60
Manager, Calcutta and South-Eastern State Railway	69	1,500
Northern Bengal State Railway	6	85

APPEJIDEt II.—continued.

To whom sent	Wardfan cases.	Boxes.	Number of plants.
Tirhoot State Railway	40	1,029
Eastern Bengal Railway	36	1,018
Superintendent, Central Prison	3	150
" " Jail, Buxar	20	740
" " " Furreedpore	4	200
" " " Gya	4	200
" " " Ranohee	3	50
" " " Fatehgarh	12	205
" " Telegraph Stores and Workshops, Caloutta	30
" " Government Park, Allahabad	11	244
" " Gunpowder Faotory, Ishapore	74
•Collector of Maldah	1	2
" " Purneah	1	2
" " Monghyr	1	2
" " Bhagulpore	1	2
" " Chittagpng	1	10
" " Nuddea	1	5
" " Jessore	1	5
" " Midnapore	1	2
" " Hooghly	1	2
" " Shahabad	1	2
" " Beerbhoom	1	2
" " Bankoorah	1	2
" " Mymensingh	1	2
" " Burdwan	1	2
" " Furreedpore	1	2
" " Backergunge	1	2
Lieutenant-Colonel *K. fi. Money, <u>Durghunga</u>	1	5
W. H. Harding, Esq., Howrah Hospital	134
A. A. Apoar, Esq., Caloutta	62
O. A. B. Anderson, Esq., Kondoli	3	36
Lieutenant-Colonel R. F. Angelo, Chunar	11	208
8. T. Apcar, Esq., Calcutta	17
J. Anderson, Esq., Assam	1	112
J. B. Anderson, Esq., Eetella, Assam	40
O. F. Avetoon, Esq., Caloutta	3	300
J. Atkinson, Esq., Akyab	3	45
W. F. Browning, Esq., Calcutta	12
F. Biden, Esq., Caloutta	100
G. Bartlett, Esq., Caloutta	42
Captain Buller, Mergui	76
" " Bidwell, Ship <u>Merwanjee Franyee</u>	5
P. R. Buohanar, Esq., Kalagool	1	50
Dr. T. Beaumont, " Hyderabad	2	24
Colonel E. R. O. Bradford, fl. fl. i., Ajmere	2	43
J. Benson, Esq., Seebpore	35
Miss Berhend, Caloutta	4
T. J. Barr, Esq., Garden Re*oh	46
8. Bird, Esq., Caloutta	6
J. C. P. Campbell, Esq., Ho*o	28
P. Maclean, Esq.	13
Reverend J. J. Cooke, <u>Howrah</u>	100
H. Clark, Esq., Calout	1
T. Cook, Esq.,	46
Major Court,	5
E. J. B. Ghtr. M	1	20
C ChadIT Shman, Esq., Chandbally	25
J. A " to, Esq., Chitoore	1	10
M- ... Esq., Bombay	200
... & Co., Calcutta	48
... Howrah	50
... 9	1	28
... Allahabad	4
... Howrah	6	17
... Sydney, Australia	750

APPENDIX II.—continued.

To whom sent.	Wardian cases.	Boxes.	Number of plants.
J. Eyre, Esq., Assam	50
C. Fouraores, Esq., Seebpore	108
F. Fouraores, Esq.	24
M. Fosterman, Esq., Naga Hills	1	.....	55
W. S. Grieve, Esq., Bally	50
B. Groves, Esq., Post-Master-General, Dacca	3	104
Messrs.* Gillanders, Arbuthnot & Co., Calcutta	1	570
J. H. Gilliland* Esq., Seebpore	7
M. Guttelin?, Esq., Calcutta	3
R. George, Esq., "	18
J. Coles Harding, Esq., Rangoon	1	.....	25
W. G. Head, Esq., London	1	.....	21
W. M. Heriot, Esq., Howrah	235
Hon'ble W. W. Hunter, Calcutta	80
W. M. Heriot, Esq., Howrah *	105
Captain Holmes, Ship <i>Orella</i>	4
" Haughton* Madras	25
J. H. Hamilton, Esq., Ship <i>Carusbrook Castle</i>	1	156
H. E. M. James, Esq., Calcutta	1
W.-A. Kraal* Esq., "	4
8 Kilbey, Esq., "	3
E. Kemp, Esq., "	1	20
Mr. Kobheng	2
A. Langham, Esq., Goosery	48
D. Low, Esq., Calcutta	80
D. M. Lumsden, Esq., Paniput, Assam	2	50
T. Lidbetter, Esq., Bombay ..#	4	54
G. Y. Leslie, Esq., Bishnath	2	40
E. H. Man, Esq., Andamans	4	.....	126
J. MulFane, Esq., Dhubri, Assam	3	14
C. Maries, Esq., Durbhunga Raj Gardens	16	771
— Mears, Esq., Jamalpore	6	117
G. T. H. Meyers, Esq., Seebpore	24
E. Mansfield, Esq., Singapore	1	.....	24
J. Mair, Esq., Calcutta	36
A. H. Magson, Esq., Seebpore	10
J. D. Maxwell, Esq., Calcutta	300
Miss Mulvanee, Calcutta	200
8. McDonald, Esq., Ship <i>P. Dyall</i>	12
J. Macfadyen, Esq., Calcutta	3	48
C. McFarion, Esq., Seebpore	30
A. Melvor, Esq., Tirhoot	1	855
P. Norfords, Esq., Calcutta	32
Colonel Nicholls, Calcutta	22
Miss Pfgott, Calcutta	30
R. H. Piloher, Esq., Thyetmayo	3	63
E. H. Palmer, Esq., Chandbally	7	134
A. Powell, Esq., Calcutta	13
Messrs. Parry and Co., Madras	1	.....	100
R. Pantling, Esq., Mungpoo	1	26
J. C. Parker, Esq., Calcutta	56
J. H. Peffe, Esq., Arrah	4	4,560
Hon'ble Sir H. Ramsay, K.C.B., C.B.	1	2
A. Robinson, Esq., Calcutta	34
T. J. Rowell, Esq., Singapore	24
A. E. W. Sharpe, Esq., Howrah	20	23
J. Schaumburgk, Esq., Calcutta	33
D. E. Sanders, Ch'ittagoog	172
T. Simson, Esq., Howrah	60
Messrs. Schoene, Kilburn and Co	8	200
Colonel S. Stanton, R.E., Calcutta	8
H. G. Scott, Esq., Calcutta
W. F. Swan, Esq., "
D. M. Smeaton, Esq., Rangoon?

APPENDIX H—concluded.

To whom sent.	Wardian cases.	Boxes.	Number of plants.
C. Toynbee, Esq., Kornafulli	8	150
J. L. Turnbull, Esq., Calcutta	30
Hon'ble J. S. Thomas, Madras	2	30
J. E. Tuson, Esq., M.D., Calcutta	3
W. Tee, Esq., "	4
"E. 8. Vardon, Esq., "	2
R. B. West, Esq., "	210
A. Wilson, Esq., Sourabaya, Java	3	80
Dr. G. Watt, Manipalre	1	12
J. Wormald, Esq., Dewsberry, England	1	3
J. L. Wilcox, Esq., Calcutta	4
Babu A. Pershad, "	2
" Bi N. Ghose, Eishnagar	25
" B. B. Mookerjee, Calcutta	2
" B. Ghose, Seebpore	16
" C. P. Banerjee, Calcutta	1
" D. N. Roy, Seebpore	8
" D. Dass, Kidderpore	2
" E. B. Mookerjee, Calcutta *	8
" G. C. Dutta, Seebpore	1	40
" G. C. Mookerjee, "	11
" G. O. Mookerjee, Calcutta	1
" G. D. Eoondoo, "	*8
" H. M. Chatterjee, Seebpore	4
" H. C. Ghose, Akra	2
" J. N. Mookerjee, Barasat	200
" J. N. Mitra, Calcutta	24
" J. N. Tewary, "	75
" J. N. Mullick, Andool	27
" J. N. Goopla, Hooghly	2
" K. E. Bose, Kidderpore	11
* " E. B. Mullik, Calcutta	* 107
" K. K. Mondol, Talligunge	15
" * L. M. Chatterjee, Seebpore	11
" M. S. Dass, Benare	1	2
" N. M. Bhuttaoharya, Seebpore	24
" N. N. Mookerjee, Calcutta	4
" A. E. Dutta, Bally	16
" P. O. Mitra, Calcutta	14
" P. T. Jani, Subernagrain
" Ramessur Miilia, Howrah
" R. N. Roy, Calcutta	37
" R. C. Mookerjee, Howrah	2
" S. P. Chatterjee, Calcutta	106
" T. O. Boy, Seebpore	1
" Mally, nuraiymān, Manoktollā	3
" ditto, ditto	3
" ditto, ditto	49
" ditto, ditto	42
" L. Khoda Bux, Sonai	17.
Total	44	442	29,483

APPENDIX III.

Statement of Seeds received from 1st April 1882 to 31st March 1883.

From whom received.	Number of parcels or packets.
Sir J. D. Hooker, K.C.S.I., Director. Royal Garden, Kew, London	43
Dr. Egel, Imperial Garden, St. Petersburg, Russia ...	207
Botanic Garden, Trinidad, West Indies ...	20
Ditto Natal ...	8
Ditto George Town, Demerara ...	2
Ditto Harvard University, T.J. S. A. ...	1
Ditto Singapore ...	24
Ditto Hobart Town, Tasmania ...	43
Ditto Jamaica ...	4
Ditto Buitenzorg, Java ...	1
Ditto Hong-Kong, China ...	10
Ditto Peradeniya, Ceylon ...	1
Ditto Saharanpore * ...	118
Ditto Darjeeling ...	437
Sir Ferdinand Yon Muller, F.R.S., Melbourne, Australia ...	8
Secretary, Agri-Horticultural Garden, Lucknow ...	2
Ditto ditto of India, Calcutta ...	33
Messrs. G. Brunning and Son, St. Kilda Nurseries, Melbourne ...	1
Her Majesty's Consul-General, Zanzibar ...	*
Conservator of Forests, Pegu Circle ...	38
Ditto ditto, Northern Division, Bombay ...	1
Deputy Conservator of Forests, Kurseong Division, Bengal ...	1
W. Scott, Esq., Assistant Director of Forests and Gardens, Mauritius ...	4
Deputy Commissioner of Forests, Nilghiri Hills ...	2
His Excellency General Lord Napier of Magdala, G.C.B., &O. ...	1
Chas. S. Bayley, Esq., Officiating Under-Secretary to the Govern- ment of Bengal *	1
Director, Department of Agriculture and Commerce, North-West Provinces and Oudh ...	1
Dr. Beaumont, Residency Surgeon, Hyderabad ...	10
Sir George Macleay, Pandal Court, Surrey, England ...	1
Count Gilbert des Voisins, France ...	17
E. H. Mail, Esq., Andamans... ...	9
A. Parsons, Esq., Amherst ...	13*
W. J. Talbot, Esq., Tellapur, North Canara, Bominy ...	1
T. C. Anderson, Esq., Annfield, Ceylon ...	5
Colonel Collett, C.B., Mean Meer, Punjab ...	2
Dr. Sanders, Chittagong ...	1
Colonel Angelo, Chunar ...	1
M. Enfest Michel, Avocat, Paris ...	1
"A. Simson, Esq., Calcutta ...	1
Messrs. Williamson, Magor and Co., Calcutta ...	1
Dr. George Watt, Manipore... ...	1
Herr H. Kunstler, Penang ...	11
J. Gammie, Esq., Government Cinchona Plantation, Darjeeling ...	6
R. Pantling, Esq., Mungpoo, Darjeeling ...	315
J. L. Lister, Esq., Nimbong, Darjeeling ...	46
Collected from jungles, &c. ...	21
Total ...	1,023

APPENDIX IV.

Statement showing Seeds distributed from the Royal Botanic Garden during the year 1882-83.

To whom sent.	Number of parcels and packets.
Sir J. P. Hooker, K.C.S.T., F.R.S., &c., Kew, London	295
Dr. Regel, Imperial Garden, St. Petersburg, Russia	128
Sir Ferdinand Von Muller, University, Melbourne	5
Dr. Treub, Buitenzorg, Java	78
C. Ford, Esq., Botanic Garden, JHong-Kong	21
Botanic Garden, Mauritius	14
Ditto Golden Spring, Jamaica	5
Ditto Peradeniya, Ceylon	2
Ditto* Turin, Italy	153
Ditto Durban, Natal	207
Ditto Trinidad, West Indies	104*
Ditto Guneshkhind, Poona	1
Ditto Singapore	25
Ditto Saharanpore	234
Ditto Darjeeling	494
Curator, Botanic Reserve, Bowen, Queensland, Australia	37
Captain Lawrence, Archer, Eating Dean, Middlesex	1
Secretary to the Queensland Acclimatization Society, Queensland	30
Ditto Agri-Horticultural Society, Madras	2*
Ditto ditto, Punjab, Lahore	41
Ditto ditto, Central Provinces	2
Superintendent, Horticultural Garden, Lucknow	2
Secretary to the Agri-Horticultural Society of India, Calcutta	20
M. A. Godefroy Lebeuf, Argenteuil, France	1
W. G. Head, Esq., Horticultural Department, Crystal Palace, London	8
W. Bull, Esq., Chelsea, London	3
Messrs. James Yeitoh and Son, Royal Exotic Nursery, Chelsea, London	170
Messrs. Haage, Schmidt and Co., Erfurt, Prussia	83
Superintendent, Government Farm, Khandesh, Bombay	1
Conservator of Forests, Pegu Circle, Rangoon	28
Ditto ditto, Moulmein	1
Ditto ditto, Kurseong Division	1
Ditto ditto, Rangamati, Chittagong	1
Deputy Conservator Forests, Buxa, Bhojpur	16
Assistant ditto ditto, Beluchistan	6
Conservator of Forests, Baroda	1
Deputy Conservator of Forests, Dehra Dun	1
Conservator, H. H. the Nizam's Kail way Forests, Hyderabad	1
Dr. Bidie, Superintendent, Central Museum, Madras	1
The Commissioner and Conservator of Forests, Ajmere, Rajputana	34
Chairman, District Road Cess Committee, Chumparun	6
A. W. Maokie, Esq., Ranchi Municipality	49
Vice-Chairman, Municipality, Rampore Beaulah	1
Ditto ditto, Noakhailly	1
Hon'ble H. L. Dampier, Calcutta	101
Major G. F. E. S. Neill, P. W. Department, Calcutta	1
Colonel Stanton, R.E., Calcutta	1
M. J. Gallian, Consul-General for Italy, Calcutta	90
Colonel Mattson, Consul-General, XI. S. A., "	"
" E. B. Sladen, Commissioner of Arakan	6
A. H. Hildebrand, Esq., Deputy Commissioner, Arakan	12
M. R. Weld, Esq., S. Arcot, Madras Presidency	8
Captain Parrott, British Burmah	10
La Marchesa Estherdella, Valb de casa, Italy	14
Sir George Macleay, Pendell Court, Surrey, England	150
Right Hon'ble the Earl of Ilchester	42
Messrs. Stanley, Price & Co., Calcutta	2
A. J. Nicol, Esq., London	62
Messrs. Woolson & Co., Passaic, N. J., U. S. A.	61
J. H. Mangles, Esq., Velewood, Hazlemere, Surrey	22
John T. D. Ltewelyn, Esq., Swansea, England	5
S. T. Apar, Esq., Calcutta	...
Mr. Edward, "	...
Surgeon-Major W. D. Steward, Cuttack	...
Captain Barlow, Calcutta	...
J. G. Apar, Esq., "	...
S. T. Apar, Esq., "	...
Herr W. Mack, "	...
J. M. Cunningham, Esq., M.D., Surgeon-India, Calcutta	...

APPENDIX TV.—concluded.

To whom sent.	Number of parcels and packets.
C. Maries, Esq., Raj Durbhunga	80
Lieutenant-Colonel R. P. Money, Durbhunga	32
E. H. Man, Esq., Andamans	2
J. D. Davis, Esq., Assistant Commissioner, Tenasserim	2
"Lieutenant-Colonel W. Tweedie, Political Resident, Turkish Arabia	1
" " " C. Smith, Resident, Tjdaipur	10
" " " Angelo, Chunar	12
J. G. Gamble, Esq., Wynberg Hill, Cape Town	195
Shirmant Gangadhur Yashvant, Myral, Baroda	160
James Inglis, Esq., Sydney, Australia	197
Major H. B. Abbott, Political Superintendent, Jhalarapatan	5
AC Parsons, Esq., Ajmere	23
J. Gammie, Esq., Government Cinchona Plantation, Darjeeling	4
R. Bantling, Esq., ditto ditto ditto	2
J. Kennedy, Esq., Darjeeling	2
Superintendent of Works, P. W. Dept., Cooch Behar State	1
General Manager, Court of Wards' Estate, Dinagepore	1
Robert Harland, Esq., Asst/Secy. to the Govt. of Punjab	10
Ma. for A. T. Laughton, Rangoon	2
D. P. Skipton, Esq., Damoh	36
The Local Fund-Engineer, Coconada	32
District Engineer, Rungpore	2
Executive Engineer, Buxar	1
G. W. Jameson, Esq., Sakesar Hill, Shahpore, Punjab	5
Superintendent of Jail, Berhampore	1
Dr. T. S. Thoiftson, Colachel, Travtoore	4
Thomas Q. Wilson, Esq., Soorabaya, Java	1
Thomas Barnard, Esq., Buxar	7
Lieutenant-Colonel Gwyune, Manchester Regiment	k
J. H. Lawrence, Esq., Baling Dean, Middlesex]
A. McD. Clark, Esq., Calcutta	J
A. P. Webb, Esq., Barout, Meerut	3
W. Parry Crake, Esq., Madras	1
The General Manager, Court of Wards' Estates, Dinagepore	2
Colonel C. B. Lucie Smith, Raipur	1
Captain W. F. Cahusae, Poona	3
Major H. M. Burgess, Quetta	1
Captain J. Y. "Worthington, Algier Mustapha, Algiers	1
J. Peter, Esq., Chandpore, Caohar	1
Percival Bury, Esq., Ranchi	i
J. G. Horsfall, Esq., Masailipatan	\
Reverend P. J. Wilkinson, M.D., Kumaon	171
J. F. Maclaren, Esq., M.D., Jullunder	ng
J. F. Bourdillon, Esq., Trevandrum, Trevanoore	1
C. E. Welldon, Esq., Ceylon	%
T. H. Stephens, Esq., "	<2
Collector of Balasore	1
Reverend J. Woodside, Fatehgarh	203
G. H. Pewor, Esq., Chunar	1
Mrs. Annee Gimbet, Sala Bwaie, Assam	1
The Principal, Ravenshaw College, Cuttack	64
Captain Reeves, Barque Umvoti	207
A. W. B. Power, Esq., as., Deputy Commissioner, Lohardugga	2
W. W. Johnston, Esq., Dhadka, Manbhoom	1
Señor Don Thomas Heradie Malago, Gibraltar	135
Howard Bendall, Esq., M.B., Steam-ship I%dia	bl
F. C. Anderson, Esq., Dickoya, Ceylon	1
District Superintendent of Police, Jhansi	1
Sir H. T. Maoperson, A.C.B., C.B., Allahabad	136
Magistrate of Patna	1
KOUP Jainarain Singh, Did wary, Dasna	1
Babu Bonomally Kundoo, Buxdwan	2.
" Surujdeb Narayan Singh, zemindar, Belegurh, Tirhoot	1*
" Protap ^farayan Singh, Bankurah	1
" Devendra Nath Roy, Maldah	1
" Mohendra Nath Sein, Nyehatie	75
Hurry Mithun Mookerjee, Seebpore	10
Total	5,204 ¹

FINANCIAL DEPARTMENT.

AGRICULTURE.

DARJEELING, THE 11TH SEPTEMBER 1883.

RESOLUTION.

READ—

The Annual Report on the Royal Botanic Gardens, Calcutta, for the year 1882-83.

Dr. King has prefixed to his report a sketch of the scheme of improvements in the garden grounds, which was submitted by him for the approval of Government in 1874, and which was finally completed in the past year. He writes :—

" The whole extent of the grounds has been raised in level, the necessary soil having been obtained from large sheets of ornamental water which have been cut out. These artificial lakes have been connected with each other by underground pipes, and a steam pump has been supplied, by which the water in the whole system can be kept at a high level by means of water pumped up from the river. Numerous wide roads have been made all through the garden, so that carriages may now be driven through every part of it. This is an improvement which is much appreciated, as the old restriction to driving acted to a great extent as a deterrent to visitors. Numerous foot-paths have also been made. The bamboo and mat erections, which used to do duty as conservatories, have been replaced by three large, handsome, and efficient structures of iron, on which a thin thatch of grass is spread, and under shelter of which tropical plants thrive admirably*. The valuable collection of dried plants has been suitably housed in a handsome building designed by Mr. E. J. Martin, the Government Architect, the internal arrangements of which are to a considerable extent adapted from those of the new Herbarium building at Eew. New propagating houses, tool, and potting-sheds have been erected, and good dwelling-houses have been built for the members of the garden establishment, both European and native. A boundary wall and ditch have been partly built round the garden; and finally, attempts at landscape effects have been made in the gardens, and the collections have been increased by considerable accessions of plants, both indigenous and exotic."

The change in the whole aspect of the gardens since the scheme was undertaken is scarcely to be understood except by those who have seen them under both conditions. The public of Calcutta, no less than the Government, are indebted to Dr. King for the exertions to which these great improvements are due.

2. Considerable attention was given to the cultivation of various economic plants. The Ceara rubber tree, which thrives well, and has a quick growth, was propagated to a considerable extent, and the Zanzibar rubber plant *Flacardina indica*, it is said, found a congenial home in Lower Bengal. There has also been a steady demand for mahogany seedlings. Dr. King has been trying to obtain from Europe in large quantity the seed of the paper mulberry (*Broussonetia papyrifera*), which grows wonderfully well, with the view of spreading its cultivation in India. He has also arranged for a supply from Japan of the food-plant known as the "Soy bean" for experimental cultivation in this country, although it entertains serious doubts as to the success of the trial. A few plants of *Cinnamomum*, which yields the Cassia bark of commerce, were received from Hong-Kong, but they do not promise to thrive well.

3. The subject of the utilization of various tropical plants engaged much of the Superintendent's attention in the past year. A French mechanic was, with the consent of the Superintendent, sent out by Messrs. Houen, to erect in the garden his patent machine for clearing the timber. It was driven by the garden-engine and tried on a tree.

plants. It cleaned the Bheea and Agave fibres admirably, though it was not equally successful with plantain and other fibres. The machine is, in Dr. King's words, " beautifully simple," and he has little doubt that, if the inventor were to give his mind to the subject, he would have no difficulty in contriving simple and cheap machines adapted to any native fibre suitable as a raw material for paper, cloth, or rope. Should such a machine be successfully constructed, it cannot fail to prove of the utmost value in a country which, like Bengal, abounds with fibrous plants. The Lieutenant-Governor will be glad to receive any further information on the subject which Dr. King may be able to procure. In his present report, Dr. King points out that the *bhabur* used by natives for rope-making is not the produce of *Eriophorum comosum*, as he had formerly supposed, but is derived from *Andropogon involutes*—a grass said to abound in the hill parts of Behar and Chota Nagpore, where it is known as *sabai*.

4. One of the garden tanks has been stocked with Chinese fish obtained through the kindness of the Hon'ble H. S. Thomas, of the Madras Civil Service. Dr. King's proposal to make use of the various ornamental lakes in the garden as breeding ground for the fry, which might afterwards be distributed to all parts of the country, commends itself to the approval of the Lieutenant-Governor.

5. The new building for the Herbarium, which was completed during the year under report, is well adapted in every way for its purpose. There have been considerable additions to the collection of dried plants, the chief contributors being Herr Kunstler, Dr. George Watt, Mr. J. S. Gamble, Mr. W. A. Talbot, Mr. Marshall Woodrow, Dr. Schlich, Dr. Treub, and Dr. Anderson. A considerable number of specimens of dried plants was also obtained through native collectors, whom Dr. King had despatched to the higher Sikkim Himalaya. The interchange of seeds and plants went on actively during the year, the issues being 29,483 of living plants, and 5,224 of seeds, against 23,939 and 3,303 respectively in the previous year. The plants and seeds were chiefly issued to Magistrates for planting in stations and along district roads; to Superintendents of jails, hospitals and educational institutions, and to municipalities. The receipts numbered 9,786 living plants and 883 packets of seed, against 9,766 and 883 in 1881-82, the principal contributors being Sir J. D. Hooker, the Directors of the Botanic Gardens in Ceylon, Demerara, Jamaica, Hong-Kong, Natal, and Singapore, Mr. Kunstler and Mr. Man. The whole of the budget allotment of Rs. 70,350 was spent, while the receipts from the sale of surplus plants amounted to Rs. 1,494-10-6.

6. *The Lloyd Botanical Garden, Darjeeling*, continued to suffer severely from the depredations of cockchaffer grubs. " This grub," Dr. King writes, " feeds on the fine rootlets by which plants absorb their nourishment from the soil, and only such plants escape as send their rootlets deeper into the soil than it cares to penetrate. The whole of the grass in the garden and all herbaceous plants rapidly succumbed to its ravages, as did many of the flowering shrubs, only the deeper rooting shrubs and trees being spared. Even the plants in the conservatories did not altogether escape, eggs of the insect having got in considerable numbers into the soil of the pots. This grub is not new to the district. It is often found in soil near the sites of old grazing stations in the forest, and it not unfrequently does damage to native crops in the neighbourhood of these. The cockchaffer, of which it is the grub, appears thus to affect manure." By vigorous efforts Mr. Jaffrey, the curator of the garden, succeeded in collecting and destroying some six millions of the grubs, and the plague has since shown signs of disappearing. The garden also suffered owing to alterations on the top of the hill which were necessary for the preparation of the site for the Eden Sanatorium. Heaps of loose debris were shot over the side of the hill from the hospital side, but steps are being taken to prevent further slips. Dr. King owes Mr. Jaffrey well-deserved credit for the energy and determination which he has displayed under disheartening circumstances. It is believed that the quality of potatoes in the district has improved to a considerable extent. Distribution of acclimatized English potatoes produced in the garden. The whole of the budget allotment of Rs. 8,330 was spent, while the receipts amounted to Rs. 355-4-3.

7. The thanks of the Lieutenant-Governor are again due to Dr. King and his subordinates for the excellent work done during the year.

ORDER—Ordered that a copy of the Report and of the Resolution be submitted to the Government of India, in the Revenue and Agricultural Department, for information.

Ordered also that a copy of the Resolution be forwarded to the Superintendent of the Botanical Gardens for information.

By order of the Lieutenant-Governor of Bengal,

COLMAN MACAULAY,

Secretary to the Government of Bengal.

No. 2035T—F.

COPT forwarded to the Superintendent of the Botanical Gardens for information.

By order of the Lieatenant-Governor of Bengal,

E. N. BAKER,

Offg. Under-Secretary to the Govt of Bengal

DAEJEELING,
Tie Utk September 1883.

2. The distance and inaccessibility of the garden from Calcutta have long been matters of regret. A means of neutralising these has presented itself during the year by the establishment on the river of a service of passenger steamers which call at several points within the port, something after fashion of the penny steamers on the Thames. One of the calling places of these steamers is Mattiabruj ghat, just opposite the garden; and it appears to me that it would be a convenience for visitors to the garden were these steamers to call at a point on this side of the river and just outside the garden. Public parks and gardens, such as this, are universally recognized as powerful agencies for refining and civilising the masses of the people, and as a most, efficient means of putting a pure and elevating kind of pleasure within their reach. In this view the erection of a landing stage so that these steamers might be induced to call at or near the garden might not be considered an inappropriate object to spend a little money on.

3. *Economic Plants*.—During the year several economic plants have received attention. Consignments of *sabui* grass (*Andropogon involutes* of Stendel and *Pottinia eriopoda* of Hance) have been received from various parties proving its extensive distribution in quantity in various parts of the province. There is now no doubt of the suitability of this grass as a paper fibre, provided it can be laid down cheaply enough at a mill. This grass unfortunately affects districts where water carriage does not exist, and for cheap raw material (such as that for paper must necessarily be) any other kind of carriage is apt to fall as a crushing and prohibitive tax. Some months ago I cut some branches of a paper mulberry tree (*Broussonetia papyri/era*) two years old, and had the bark removed. The latter was reported on by a paper-maker and pronounced, as I expected, an admirable paper material. Experience in this garden has already proved that this tree grows easily and rapidly in Lower Bengal, and I am assured by Mr. Maries, Superintendent of the Gardens of His Highness the Maharajah of Durbhunga, that it also grows well at Durbhunga—a much drier part of the province. If therefore villagers would take to growing this tree by the borders of their gardens and in the odd corners and scraps of ground in which Bengal abounds, there is a reasonable prospect that the province might produce in quantity one of the very best paper fibres known—a fibre at once strong and fine, and that has the great merit of requiring very little bleach. With the view of extending the cultivation of this tree, I am having thousands of young plants prepared for issue and for planting out in blank spots along the garden boundary, a fuglier consignment of the plant yielding the cassia bark of commerce was received from the Botanic Garden, Hong-Kong. These plants are of course quite young. They are, however, quite healthy. The plant seems a slow grower, and some time must elapse before anything can be gathered as to the likelihood of its being grown to a profit in Bengal as a source of Cassia bark. As stated in my last report, a quantity of seed of the Soy bean was distributed to tea-planters and others likely to interest themselves in its cultivation. This bean had been much written about as a pulse well suited for India, and its cultivation had been pressed on Government. I never had much hope of its success, as I do not consider it a crop well suited for the climate of any part of Bengal, and the reports that have been received from planters to whom supplies of seed were sent have been unfavourable. During the year quantities of green Rhea were supplied to various applicants. Other fibrous plants were also supplied to gentlemen interesting themselves in such matters.

4. *Gourami Fish*.—Through the kindness of the Hon'ble H. S. Thomas, one of the garden tanks was stocked with a quantity of the young of this excellent fish, and in my last report I expressed a hope that this fish would thrive in the sheets of ornamental water in the garden. I regret to say that the experiment has been a failure, for when the tank into which the young Gourami had been put was dragged two months ago, not a single Gourami could be found. I propose, however, to make another trial.

5. *Herbarium*.—When the year began, the collections of dried plants and the library had just been removed into the new building provided for their reception. Owing to the cramped and utterly insufficient accommodation afforded by the old building, it had been impossible to incorporate in the named herbarium the large quantities of new material that had been received during the previous few years. The work of arranging, naming, and incorporating

these is a long and laborious one^ But Mr. **Bface** has worked diligently at it, and good progress has been made. A great deal, however, still remains to be done. The library also has received a good deal of attention, and a beginning has been made in classifying the large number of botanical pamphlets which it contains. The new building proves, on further experience, to be admirably adapted for its purpose. It is light, dry, and well ventilated, and in it there is room to consult the collections with ease and comfort, while at the same time they are well secured against damp, insects, and fire. During the year the herbarium has been enriched by large sets of duplicate specimens received from the herbarium of the Royal Garden at Kew. The distinguished director of that great national institution, Sir J. D. Hooker, has always been a warm friend to the Calcutta garden, and the herbarium here owes to a great extent its existence to his thoughtful munificence. His contributions of last year are therefore only a continuation of former favours. Considerable collections made in the Malayan Peninsula by Mr. H. H. Kunstler were also received during the year. Among these are specimens of many plants yielding important economic products, such as gutta-percha, caoutchouc, building timber, and the like. The flora of the Malayan Peninsula closely resembles that of the lower part of Burmah, and these Malayan collections are of much value and interest from the bearing they have on the flora of the still comparatively unexplored regions near Tavoy and Mergui. To Mr. J. Sykes Gamble, lately Conservator of Forests in Bengal, but now occupying a similar appointment in the Madras Presidency, the herbarium is indebted for a large number of most interesting specimens from the south of India. As the flora of that part of the country was hitherto rather poorly represented in our collection, Mr. Gamble's contribution was peculiarly acceptable. The same remark applies to the less numerous but very interesting collections sent by Mr. W. A. Talbot, Deputy Conservator of Forests in North Canara.^ Dr. Schlich, Inspector-General of Forests, has also sent some valuable collections made during his recent tours in the Central Provinces and the Himalaya beyond Simla. Mr. J. F. Duthie, Superintendent of the Botanical Garden at Saharanpur (who spent some weeks working in the herbarium), contributed a very interesting collection (containing several novelties) made by him in some side valleys in the upper part of the course of the Ganges which had hitherto never been explored by a botanist. Dr. Trimen, Director of the Botanical Garden in Ceylon, who also visited the garden during the past year, presented a few critical species of much botanical interest. Prior to leaving India, Mr. H. C. Levinge deposited in the herbarium a large series of ferns collected by himself in the south of **India** and the Himalaya. These specimens, named by Mr. Levinge's own hand, have a peculiar value and interest, as probably no botanist ever had a more extensive knowledge of Indian ferns than Mr. Levinge. **Dried specimens** of some critical plants of Mahableshwar were contributed by Dr. T. Cooke, Principal of the Science College, Poona. Mr. Ford, Superintendent of the Botanic Garden, Hongkong, Mr. R. W. Hullett, of the educational service of the Straits Settlements, and Mr. Maries of Durbhunga have also sent acceptable contributions; as also have Mr. C. B. Clarke, of the Educational Department, Mr. Woodrow, of the Government Garden at Poona, Mr. Hildebrand, Deputy Commissioner of Arakan, and Dr. Hay of Aden.

6. *Interchange of plants and seeds.*—During the year 23,809 living **plants** and 3,716 packets of Seeds were issued to various public officers for planting round jails and other public buildings, along stations and cantonment roads, near dispensaries^schools, and so forth. A considerable number of plants were also supplied to the International ^Exhibition recently held in Calcutta. Wardian cases, to the number of fifty-eight, were sent to botanic and other **gardens** in various parts of Europe and the Colonies. On the other hand, living **plants** to the number of 9,179 and packets of seeds to the number of 1,038 were received from various donors in India and out of it. The chief contributors were Sir J. D. Hooker, of the Royal Garden, Kew; the Directors of the Botanic Gardens in Ceylon, Demerara, Natal, Hong-Kong, and* Java; Messrs. Haage and Schmidt, Erfurt, and Messrs. Bull and Veitch, London; Mr. E. H. Man, of the Andaman Commission; the Agri-Horticultural Societies at Rangoon, Lucknow, Calcutta; Messrs. P. Ilorder and Barton Groves, Rangoon; Mr. Duthie, of the Botanic Garden, Saharanpur; the Superintendents of the

Government gardens at Poona,* Bangalore, and ^Lucknow; Mr Cassels, of Bombay, and various officers of the Indian Forest Department. As usual, Messrs. Apcar & Co. generously carried plants and seeds to and from the Malayan countries free of freight; the Peninsular and Oriental and British India Steam Navigation Companies also carried gratuitously cases passing between this garden and those at Kew and Peradeniya.

7. The herbarium has throughout the year been under the charge of its Curator, Mr. L. J. K. Brace, to whose unflagging exertions its greatly improved condition is largely due. Mr. G. Urquhart, who was appointed acting Curator of the garden in the early part of the year, has worked well and has been confirmed in his appointment as Curator. Towards the close of the year, Mr. Half dan Bahr, the new Assistant Curator selected by Sir J. D. Hooker from the Kew staff, joined his appointment here. Mr. Bahr is at present making himself familiar with the vernacular language, and has already begun to take an active part in the working of the garden.

8. The receipts from the sale of surplus plants during the year **were** Ks. 1,345-11-9, which sum was paid into the treasury. The budget allotment for the year amounted to Rs. 70,350 and was all disbursed.

9. *Lloyd Botanic Garden, Darjeeling*—I regret to say that this garden still suffers, although in a modified degree, from the ravages of the cockchaffer grub, of which I gave an account in former reports. Mr. Jaffrey, the Curator of the garden, made during the previous year the most strenuous efforts to collect these grubs, and this seems to be the only effectual way of dealing with them. In spite, however, of all Mr. Jaffrey's efforts, a good many of the smaller grubs or of eggs must have survived; and as soon as the weather began to get warm, these showed signs of activity. All hands were at once set to collect them, and a few coolies were kept at this work during the whole of the last hot weather and rains. It is to be hoped that this pest may not shew itself again this year. Should it, however, show itself, I think it might be desirable to suspend all distribution of living plants from the garden, as grubs or their eggs are often concealed in the soil contained in flower pots. • Specimens of the grub and of the beetle into which it develops were sent long ago, through Dr. J. Anderson of the Indian Museum, to a specialist in London for identification and report. But as yet no answer has been received from the specialist. I am therefore still unable to give the name of the **creature**. A **similar** grub has proved very destructive in Ceylon to coffee planted in **patana** or grass land; but I trust the Darjeeling grub will discover no partiality for tea. The unsatisfactory condition of the sanatorium hill above **the garden** still remains a cause of anxiety, and the fall of an avalanche of semi-liquid **mud** from the heaps of *debris* lying just above the garden is an occurrence **of which** during every rainy weather Mr. Jaffrey lives in daily dread. The municipality have at last, I am glad to say, done something towards improving the **drainage** of their land which bounds the garden on two sides. The **acclimatised** potatoes, raised from English seed imported some years ago, continue to **keep** up a high quality: these * potatoes are now freely distributed **over the** district. The budget allotment of the year for this garden **was** Rs. 8,4»0 and the whole of it was spent. The receipts for **sale of plants, amounting to** Rs. 502-11-0, were paid into the Darjeeling Treasury as Government **revenue**.

10. The usual annual returns, four in number, **are** appended.

APPENDIX I.

Statement showing plants received from 1st April 1883 to 31st March 1884.

From whom received.	Wardian cases.	Boxes.	Number of plants.
Royal Garden, Kew, London	2	.....	60
Do. Botanic Garden, Ceylon	2	.....	59
Botanic Garden, George Town, Demerara	2	.....	55
Ditto, Natal ... ..	.....	4	215
Ditto, Hong-Kong	2	.....	152
* Ditto, Batavia	1	1	67
Ditto, Gunesh-Khind, Poona ... ..	.....	2	51
Lloyd Botanic Garden, Darjeeling ... ..	.....	5	1,106
Agri-Horticultural Society, Calcutta ... ..	.....	.....	24
Ditto ditto, Rangoon ... ..	.....	4	314
Campagne Continentale d' Horticulture, Gand	2	.....	58
Messrs. Haage and Schmidt, Erfurt ... ..	.....	1	1,000
J. Gammie, Esq., Government Cinchona Plantation, Mungpoo ... ..	.....	1	6
Dr. E. Sanders, Chittagong ... ..	.....	1	1
W. Bull, Esq., Nurseryman, London	1	.....	7½
H. Hamilton, Esq., Singapore ... ..	.....	1	29
G. H. Bartlett, Esq., Calcutta ... ..	.....	.....	3
R. B. West, Esq., ditto ... ..	.....	.....	36
C. Maries, Esq., Durbhunga Raj Garden ... ..	.....	.....	107
M. Ridley, Esq., Horticultural Gardens, Lucknow ... ..	.....	1	100
J. A. Cassels, Esq., Bombay	1	.....	11
J. Barton Groves, Esq., and P. Hordern, Esq., Rangoon ... ..	.....	5	143
Lieutenant-Colonel R. F. Angelo, Nynee Tal ... ..	.....	1	2
Colonel T. Cadell, C.B., Andamans ... ..	.....	1	68
E. H. Man, Esq., ditto	1	16	373
Dr. J. Beid, ditto	2	1	105
J. H. J. Sohaumberg, Esq., Calcutta... ..	.....	.....	2
Messrs. Sohoene, Kilburn and Oo., Calcutta ... ..	.....	3	202
C. B. Clarke, Esq., Calcutta ... ..	.....	1	6
T. Cooke, Esq., Mahableshwar ... ..	.....	4	15
J. D. Maxwell, Esq., Calcutta ... ..	.....	1	7
C. Morris, Esq., Pachmarhi ... ..	.....	1	11
G. Baistul, Esq., Calcutta ... ..	.....	.....	4
B. Wallnut, Esq., Mymensingh ... ..	.....	1	3
Dr. A. J. Payne, Calcutta ... ..	.....	.....	2
„ J. G. Filoher, Howrah ... ..	.....	.....	15
Captain Peter, Ship <i>Duchess of Edinburgh</i> ... ..	.....	2	224
H. O. Levinge, Esq., Sikkim ... ..	.....	.....	22
Messrs. Turner, Morrison and Co., Calcutta ... ..	.....	6	75
8. Kiiby, Esq., Calcutta ... ..	.....	.....	3
Collected by the Superintendent in Sikkim ... ..	.....	.....	100
Ditto by Herr Kunstler, Penang	19	21	1,922
Ditto by MoonBhee Abdulla, Plant Collector, Andamans	1	3	1,967
Ditto ditto ditto Assam ... ..	.....	1	12
Ditto ditto ditto Khasia Hills ... ..	.....	1	37
Babu S. P. Chatterjee, Victoria Nursery, Calcutta ... ..	.....	.....	15
Horee Mally, Nurseryman, Manicktollah, Calcutta ... ..	.....	.....	3
Bought at auction ... ..	.....	.....	16
Received from an unknown donor ... ..	.....	.....	1
Ditto ditto ... ..	.....	2	97
Total	36	92	8,977

APPENDIX II.

Statement showing plants sent out from 1st April 1883 to 31st March 1884.

To whom Bent.	Wardman cases.	Boxes.	Number of plant ^s .
Government House Garden, Calcutta	...	1	141
Royal Garden, Kew, London	...	2	38
Do. Botanic Garden, Ceylon	...	5	303
Botanic Garden, George Town, Demerara	...	8	122
Ditto, Natal	...	9	285
Ditto, Hong-Kong	...	1	24
Ditto, Vienna	...	1	30
Ditto, Trieste	...	1	29
Jardin des Plantes, Saigon	...	2	56
Deputy Commissioner, Sonthal Pergunnahs	...	10	164
Ditto, Arrakan Hill Tracts	...	2	54
Ditto, Oaltonganj	...	8	204
Agri-Horticultural Society, Calcutta...	81
Ditto ditto, Rangoon	...	9	117
Y. and A. Museum, Bombay	18
Horticultural Gardens, Lucknow	...	12	118
Superintendent of Agriculture, Ajmere	...	1	12
Ditto ditto and Forests, Cooch Behar	...	2	19
Right Hon'ble Earl of Northbrook, England	...	1	58
The Hon'ble Sir Ashley Eden, London	...	1	72
Rev. Frederick Pretymann	...	1	125
Colonel Frederick Stanton	...	1	104
Sir George McLeay, England	...	1	15
J. Sims, Esq., Victoria	...	1	29
J. Thomson, Esq., Victoria	...	7	114
H. Hardy, Esq., Sussex	...	1	117
Magistrate and Chairman, District Road Cess Committee, Khulna	...	1	12
Magistrate and Chairman of Motiharee	...	13	366
Cantonment Magistrate, Dum-Duxn	150
Ditto ditto, Dinapore	...	2	60
Commissary of Ordnance, Calcutta	2,567
J. G. Parish, Esq., Hastings	100
Conductor J. C. Newell	100
General Wilkinson, Fort William	30
The Chaplain, Fort William	12
Executive Engineer, Northern Drainage and Embankment Division, Calcutta	...	3	82
Executive Engineer, Akra	280
Ditto, Burdwan Division, Chinsurah	...	1	316
District Engineer, Mymensingh	...	1	13
Ditto, East Indian Railway, Howrah	300
Secretary to the Municipal Committee, Bareilly	...	2	12
Cathedral Day School, Calcutta	200
Church Mission Society	101
Catholic Male Orphanage	400
Public Library, Seebpore	80
Engineering College, ditto	2
Superintendent, Government Workshop, Seebpore	14
Principal, Government Engineering College, ditto	60
Calcutta Municipality	250
Rajputana-Malwa Railway, Mhow	...	8	195
Calcutta and South-Eastern and Nalhati State Railways	...	46	1,500
Bengal Central Railway Company, Limited	150
Superintendent, Gunpowder Factory, Ishapore	275
Ditto, Jails, Pubna	...	6	150
Ditto, do., Ranchi	...	4	100
Ditto, do., Buxar Circle	...	4	110
Ditto, Central Jail, Midnapore	...	7	260
Ditto, ditto, Rajshahye	...	6	248
Traffic Superintendent, Saidpore	...	6	130
Collector of Kistna	...	1	20
Ditto Hooghly	...	5	100

APPENDIX: TL—continued.

To whom sent.	Wardian cases.	Boxes.	Number of plants.
Collector of Purneah .....	.....	4	9i
Superintendent, Public Garden, Allahabad .....	.....	5	58
Ditto, Rambagh Garden, Amritsar .....	.....	12	127
Ditto, Durbhunga Raj Garden .....	.....	21	455
Acting Port Officer, Calcutta .....	.....	3	150
Executive Commissariat Officer, Calcutta .....	.....	.....	100
Transport Officer, Calcutta .....	.....	.....	200
His Highness the Sultan of Zanzibar	2	.....	87
lieutenant-Colonel E. P. Angelo, Nynee Tal .....	.....	5	108
A. A. Apcar, Esq., Calcutta .....	.....	.....	33
A. T. Apcar, Esq., Seebpore .....	.....	.....	50
S. T. Apcar, Esq., Garden Each .....	.....	.....	33
F. J. Atkinson, Esq., Calcutta .....	.....	.....	98
8. Antony, Esq., ditto .....	.....	.....	2
Gh E. Anderson, Esq., Calcutta .....	.....	.....	60
Dr. T. Beaumont, M.D., Hyderabad .....	.....	1	12
M. Bertin, Marseilles	1	.....	31
H. Blandford, Esq., Calcutta .....	.....	.....	8
Hon'ble J. Bosisto, M.F., Melbourne	1	.....	24
B. Bryans, Esq., Sylhet .....	.....	4	74
J. Bailie, Esq., „ .....	.....	22	250
Dr. R. A. Barker, M.D., Doomka .....	.....	2	24
G. Bartlett, Esq., Calcutta .....	.....	.....	17
R. Bleohynden, Esq., „ .....	.....	.....	50
W. R. Blackett, Esq., „ .....	.....	.....	150
MM. D. Bruce, London	1	.....	34
Dr. E. Bonavia, M.D., Etawah .....	.....	1	6
Dr. G. Bidie, C.I.B., Madras	1	.....	28
Messrs. Burn & Co., Howrah .....	.....	.....	20
A. W. Cooper, Esq., Dum-Dum .....	.....	.....	40
Mir. Clark, The Gardens, Studley-Ripon .....	.....	1	62
J. A. Cassels, Esq., Bombay	1	1	60
D. Edubzi, Esq., Calcutta	1	.....	52
D. Esburgh, Esq., „ .....	.....	.....	4
Max. H. Ferars, Esq., Andamans	1	.....	27
lieutenant-Colonel T. Cadell, v.c.	1	.....	21
Messrs. Finlay, Muir & Co., Calcutta... ..	2	5	153
R. A. Fairlie, Esq., „ .....	.....	.....	22
M. Gutteling, Esq., „	2	.....	86
J. H. Gillilahl, Esq., Engineering College, Seebpore ..	.....	.....	26
Captain Grew, Ship <i>Celia</i> .....	.....	.....	7
J. H. Gilbert, Esq., Rangoon .....	.....	1	15
Major H. O. Houghton, Madras .....	.....	.....	24
W. B. Hutohinson, Esq., Calcutta .....	.....	.....	100
J. Hodding, Esq., „ .....	.....	7	154
J. Inglis, Esq., Sydney	3	.....	78
Key. Father Joseph, Calcutta .....	.....	.....	190
J. Johnston, Esq., „ .....	.....	.....	20
R. Jackson, Esq., „ .....	.....	.....	1
E. Knight, Esq., „ .....	.....	.....	8
R. Ken, Esq., „ .....	.....	.....	6
8. Kilby, E*q., „ .....	.....	.....	54
H. H. Kunstler, Esq., Penang	1	.....	28
Captain Lincken, Ship <i>L. L. Sturge</i> .....	.....	.....	4
Dr. A. 8. Lethbridge, Calcutta .....	.....	.....	23
J. L. Lister, Esq., Pkoobarri .....	.....	6	64
E. Laoey, Esq., Howrah .....	.....	.....	8
A. H. Mason, Esq., Seebpore College... ..	.....	1	63
E. H. Man, Esq., Andamans	2	.....	88
G. Mann, Esq., Shillong .....	.....	3	29
Q. G. Le Messurier, Esq., Darjeeliog ..	.....	4	40
Dr. Mackenzie, Sealdah .....	.....	.....	52
Captain MoMahon, S. 3. <i>Clan Sinclair</i>	1	.....	34

APPENDIX H—continued.

To whom sent.	Wnradian cases.	Boxes.	Number of plants.
G. Mills, Esq., Seebpore	350
E. F. Mondy, Esq., do.	40
Kev. P. Mollick, Calcutta	1
E. N. Minchin, Esq., do.	4
Messrs. Mackinnon, Mackenzie & Co., Calcutta	14
Colonel Nicholl, Garden Each	1	17
V. Nepos, Esq., Calcutta	4
Dr. J. G. Pilcher, Howrah	16
Captain R. Peebles, S. S. <i>Ticeedale</i>	5
Dr. H. B. Purves, Burdwan	3	65
Dr. A. J. Payne, Calcutta	1	9
W. C. Plowden, Esq., London ...	1	...	24
E. H. Palmer, Esq., Chandbally	3	73
R. Pantliug, Esq., Mungpoo	2	53
J. Parkes, Esq., ^iliguri	2	23
Rev. A. TV. R. Quinlan, DunvDum	3	130
F. A. deRoepstorff, Esq., Nicobar Islands ...	1	...	30
Dr. J. Reid, Andamans ...	1	6	105
T. J. Rowell, Esq., M D, Singapore ...	1	...	25
Captain K obertson, Ship <i>La tnzo</i> ...	1	...	18
T. H. Ralli, Esq., Calcutta	12
A. Simson, Esq., do.	58
A. E. W. Sharpe, Esq., Howrah	9
Messrs. Schoene, Kilburn & Co., Calcutta	1	12
J. H. J. Schaumberg, Esq., do.	8
Dr. Stewart, do.	5
W. Swetenham, Esq., Selangore ...	4	...	102
W. Swinhoe, Esq., Calcutta	20
Mrs. Sedgfield, do.	5
K. Sterndale, Esq., do.	60
A. Stewart, Esq., do.	5
G. K. Thorn, Esq., do.	200
Hon'ble H 8. Thomas, Madras	1	9
Captain Jas. Vincent, Ship <i>Myvamoy</i>	34
Dr. G. Watt, for International Exhibition	1	4,561
Superintendent of Works, for ditto	2,000
R. B. West, Esq., Manager, Horticultural Company, Calcutta	92
Captain S. F. Walker, Perak ...	6	...	153
A. E. Penciling, Esq., Pundular	2	4 mound* of Bhecaroot, 1 mound of Bheca stems.
J. Kenyoti & Co., Calcutta	17 mound of Hbee stems.
Kevenue and Agricultural Department, Calcutta
Kumnr Jainarain Singh, Meerut	1	6
Seth Luchman Doss, Calcutta	1	8
Juggul Kissen, Benares	1	12
Sakharain Gopal, Indoro	2
Babu S. P. Chatterjee, Victoria Nursery, Calcutta ...	mmf	...	138
„ S. P. Chowdhury, Krisnagore	3
„ N. C. Mookorjee, Calcutta	12
„ B. B. G an goofy, Howrah	11
„ B. N. Ghose, Seebporo ...	III	...	4
„ B. K. Dey, Ooterparah	3
„ B. K. Dey, Calcutta	3
„ D N Bose, ditto	2
„ M. N. Koy, Moorshedabad	1	1
„ J). P. Ghose, Calcutta ...	III	...	1
„ G D. Koondy, Klabori	2
„ 1L P. Blmttaeharjya, Nuddea	2
„ K. C. Nag, Seebpore	2
„ K. H. Mullick, Andool	5
„ R. N. Soth, Calcutta	7
„ R. M. Doss, Kungpore	14
„ W. J. Kurinokor, Calcutta	6

APPENDIX II—concluded.

To whom sent.					Wurdian cases.	Boxes.	Number of plants.
Babu A. K. JDutta, Balee	...	...	...	...	.....	.....	1
„ Kameshwar Malleah, Howrah	...	...	...	...	.....	.....	10
Sreenath Mally, Nurseryman, ManicktoUah	...	...	...	...	.....	.....	37
Horee ditto, ditto, ditto,	...	...	...	...	.....	.....	26
Gopal ditto, ditto, ditto,	...	...	...	...	.....	.....	2
Issan ditto, ditto, ditto,	...	...	...	...	.....	.....	14
Total	...	...	...	...	54	318	23,809

FINANCIAL DEPARTMENT.

AGRICULTURE.

DARJEELING, THE 9TH MAY 1884.

RESOLUTION.

READ—

The Annual Report on the Royal Botanic Gardens, Calcutta, for the year 1883-84.

The completion of the general scheme for improvements last year left little to be done in the way of original work. The planting out of the palm-house, the erection of which had been completed during the previous year, was the most noticeable work carried out in the Garden during 1883-84. For this purpose, plants that had outgrown the limits of the former low-roofed conservatories were transplanted, while the interspaces between the larger plants were filled in by lower-growing species of various kinds—*avoids*, *marantas*, *selaginellas*, and the like. The palm-house already presents a handsome appearance, and the general effect of it will be greatly enhanced as the plants continue to grow. The steam-pump, which was lately erected to keep the river water in the Garden tanks at a high level throughout the year, has proved a success. These ornamental lakes, besides improving the appearance of the Garden, have also conduced to its healthiness.

2. The distance and inaccessibility of the Garden from Calcutta greatly impair its value as a health and pleasure resort. A service of passenger steamers has recently been established, which call at several points within the port, one of the calling places being the Mattiabruj ghat, opposite the Garden. Dr. King has suggested that, if a landing-stage were erected by Government on the Howrah side of the river, at some place close to the Garden, the steamers might be induced to call there, and thereby render it much more accessible to the public. The Lieutenant-Governor would be glad to see this done if it does not involve a large expenditure. A communication on the subject will be addressed to the Agents of the Steamer Service.

3. The economic plants which engaged the Superintendent's attention during the year were the *Sabaigrass*, the paper mulberry [*Broussonetia papyrifera*], the *Cinnamon* plant yielding the *Cassia* bark of commerce, and the Soy bean. The *Sabai* grass was extensively distributed in various parts of the Province, and its suitability as a paper fibre has been established beyond doubt. The bark of the paper mulberry, which has an easy and rapid growth, was reported on by a paper-manufacturer, and pronounced to be "an admirable paper material." Dr. King believes that the plant is capable of producing one of the very best paper fibres known—a fibre at once strong and fine, and requiring very little bleach. Experience has shown that the plant grows as well in the drier climate of Durbhunga as in the lower parts of Bengal; and with a view of extending the cultivation of the tree, Dr. King is having a large number of plants prepared for issue and for planting out in vacant spots along the Garden boundary. A further consignment of the *Cinnamon* plant was received from Hong-Kong during the year. The plants, though healthy, are quite young; and as they seem to grow slowly, it will be some time before their suitability to the soil of Bengal can be ascertained. The Soy bean, of which Dr. King had arranged for a supply from Japan, was distributed during the year among planters and others for experimental cultivation. The result, which was anticipated, has been a failure.

4. The experiment of utilizing the ornamental lakes in the Garden as a breeding ground for Gourami fish has also proved a failure. One of these lakes was stocked with a quantity of this fish, which had been supplied by the Hon'ble H. S. Thomas of the Madras Civil Service; but on the lake being dragged some months after, not a single fish could be found. The Superintendent, however, proposes to make a further trial.

6. Owing to the insufficient accommodation afforded by the old herbarium, it had not been possible to arrange and name a large collection of dried plants received during the past few years; but since the completion of the

new building, this work has made considerable progress ~ under Mr. Brace's supervision. A beginning was also made in classifying the large number of botanical pamphlets which the Garden library contains. Very valuable contributions were received in the herbarium during the year from the Royal Garden at Kew, and from Government officers and other gentlemen both in India and other countries. Among the chief contributors were Mr. Kunstler, Mr. Gamble, Mr. Talbot, Dr. Schlich, Mr. Duthie, Dr. Trimen, Mr. Levinge, Mr. Ford, Dr. Cooke, Mr. Hallett, Mr. Maries, Mr. Clarke, Mr. Woodrow, Mr. Hildebrand and Dr. Hay. The interchange of seeds and plants went on actively during the year. Twenty-three thousand eight hundred and nine living plants and 3,716 packets of seeds were distributed, the principal recipients being, as usual, Station Committees, Cantonment Magistrates, and Superintendents of Hospitals and Jails. A considerable number of plants was also sent to the International Exhibition in Calcutta. On the other hand, 9,179 plants and 1,038 packets of seeds were presented to the Garden by various contributors. The receipts from the sale of surplus plants amounted to Rs. 1,345-11-9, while the whole of the budget allotment of Rs. 70,350 was spent.

6. For the third year in succession, the Lloyd Botanical Garden at Darjeeling suffered from the ravages of the cockchaffer grub. Specimens of this grub and of the beetle into which it develops have been sent to a specialist in London for identification and report, but no answer has yet been received. Dr. King's proposal to suspend all distribution of living plants from the Garden, in case the grub shows itself again this year, commends itself to the Lieutenant-Governor. A similar grub, it is stated, has proved very destructive in Ceylon to coffee planted in *patana* or grass land. Fortunately the Darjeeling grub has not as yet displayed any partiality for tea.

7. The Lieutenant-Governor desires to acknowledge the excellent work done by Dr. King and his subordinates during the past year.

ORDER—Ordered that a copy of the Report and of the Resolution be forwarded to the Government of India, in the Revenue and Agricultural Department, for information.

Ordered also that a copy of the Resolution be forwarded to the Superintendent of the Botanical Gardens for information.

By order of the Lieutenant-Governor of Bengal,

E. N. BAKER,

Offg. Secretary to the Government of Bengal.

No. 757T—F.

COPY forwarded to the Superintendent of the Botanical Gardens, Calcutta, for information.

No. 758T—F.

COPT of paragraph 2 of Dr. King's Report, and of paragraph 2 of the Resolution, forwarded to the Public Works Department. If Messrs. Hoare, Miller and Company are willing to accede to Dr. King's suggestion, enquiry should be made as to the site of the landing-place, and an estimate prepared of its cost.

By order of the Lieutenant-Governor of Bengal,

E. N. BAKER,

Offg. Secretary to the Government of Bengal.

DABJBBLINO.

The 9th May 1884.

FINANCIAL DEPARTMENT.

AGRICULTURE.

DARJEELING, THE 9TH MAY 1884.

RESOLUTION,

READ—

The Annual Report on the Royal Botanic Gardens, Calcutta, for the year 1883-84.

The completion of the general scheme for improvements last year left little to be done in the way of original work. The planting out of the palm-house, the erection of which had been completed during the previous year, was the most noticeable work carried out in the Garden during 1883-84. For this purpose, plants that had outgrown the limits of the former low-roofed conservatories were transplanted, while the interspaces between the larger plants were filled in by lower-growing species of various kinds—*avoids*, **naranta8> selaginellas*, and the like. The palm-house already presents a handsome appearance, and the general effect of it will be greatly enhanced as the plants continue to grow. The steam-pump, which was lately erected to keep the river water in the Garden tanks at a high level throughout the year, has proved a success. These ornamental lakes, besides improving the appearance of the Garden, have also conduced to its healthiness.

2. The distance and inaccessibility of the Garden from Calcutta greatly impair its value as a health and pleasure resort. A service of passenger steamers has recently been established, which call at several points within the port, one of the calling places being the Mattiabruj ghftt, opposite the Garden. Dr. King has suggested that, if a landing-stage were erected by Government on the Howrah side of the river, at some place close to the Garden, the steamers might be induced to call there, and thereby render it much more accessible to the public. The Lieutenant-Governor would be glad to see this done if it does not involve a large expenditure. A communication on the subject will be addressed to the Agents of the Steamer Service.

3. The economic plants which engaged the Superintendent's attention during the year were the *Sabai* grass, the paper mulberry (*Broussonetia papyrifera*), the *Cinnamon* plant yielding the *Cassia* bark of commerce, and the Soy bean. The *Sdbai* grass was extensively distributed in various parts of the Province, and its suitability as a paper fibre has been established beyond doubt. The bark of the paper mulberry, which has an easy and rapid growth, was reported on by a paper-manufacturer, and pronounced to be "an admirable paper material." Dr. King believes that the plant is capable of producing one of the very best paper fibres known—a fibre at once strong and fine, and reomirrig very little bleach. Experience has shown that the plant grows as well in the drier climate of Durbhunga as in the lower parts of Bengal; and with a view of extending the cultivation of the tree, Dr. King is having a large number of plants prepared for issue and for planting out in vacant spots along the Garden boundary. A further consignment of the *Cinnamon* plant was received from Hong-Kong during the year. The plants, though healthy, are quite young; and as they seem to grow slowly, it will be some time before their suitability to the soil of Bengal can be ascertained. The Soy bean, of which Dr. King had arranged for a supply from Japan, was distributed during the year among planters and others for experimental cultivation. The result, as was anticipated, has been a failure.

4. The experiment of utilizing the ornamental lakes in the Garden as a breeding ground for Gourami fish has also proved a failure. One of these lakes was stocked with a quantity of this fish, which had been supplied by the Hon'ble H. S. Thomas of the "Madras Civil Service; but on the lake being dragged some months after, not a single fish could be found. The Superintendent, however, proposes to make a further trial.

6. Owing to the insufficient accommodation afforded by the old herbarium, it had not been possible to arrange and name a large collection of dried plants received during the past few years; but since the completion of the

new building, this work has made considerable progress under Mr. Brace's supervision. A beginning was also made in classifying the large number of botanical pamphlets which the Garden library contains. Very valuable contributions were received in the herbarium during the year from the Royal Garden at Kew, and from Government officers and other gentlemen both in India and other countries. Among the chief contributors were Mr. Kunstler, Mr. Gamble, Mr. Talbot, Dr. Schlich, Mr. Duthie, Dr. Trimen, Mr. Levinge, Mr. Ford, Dr. Cooke, Mr. Hallett, Mr. Maries, Mr. Clarke, Mr. Woodrow, Mr. Hildebrand and Dr. Hay. The interchange of seeds and plants went on actively during the year. Twenty-three thousand eight hundred and nine living plants and 3,716 packets of seeds were distributed, the principal recipients being, as usual, Station Committees, Cantonment Magistrates, and Superintendents of Hospitals and Jails. A considerable number of plants was also sent to the International Exhibition in Calcutta.. - On the other hand, 9,179 plants and 1,038 packets of seeds were presented to the Garden by various contributors. The receipts from the sale of surplus plants amounted to Rs. 1,345.11-9, while the whole of the budget allotment of Rs. 70,350 was spent.

6. For the third year in succession, the Lloyd Botanical Garden at Darjeeling suffered from the ravages of the cockchaffer grub. Specimens of this grub and of the beetle into which it develops have been sent to a specialist in London for identification and report, but no answer has yet been received. Dr. King's proposal to suspend all distribution of living plants from the Garden, in case the grub shows itself again this year, commends itself to the Lieutenant* Governor. A similar grub, it is stated, has proved very destructive in Ceylon to coffee planted in *pattna* or grass land. Fortunately the Darjeeling grub has not as yet displayed any partiality for tea.

7. The Lieutenant-Governor desires to acknowledge the excellent work done by Dr. King and his subordinates during the past year.

ORDER—Ordered that a copy of the Report and of the Resolution be forwarded to the Government of India, in the Revenue and Agricultural Department, for information.

Ordered also that a copy of the Resolution be forwarded to the Superintendent of the Botanical Gardens for information.

By order of the Lieutenant-Governor of Bengal,

E. N. BAKER,

Offg. Secretary to the Government of Bengal.

No. 757T—F.

COPY forwarded to the Superintendent of the Botanical Gardens, Calcutta, for information.

No. 758T—F.

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By order of the Lieutenant-Governor of Bengal,

E. N. BAKER,

Offg. Secretary to the Government of Bengal.

DARJEELING,
The 9th May 1884.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN. CALCUTTA,
FOR THE YEAR 1884-85.

No.29G., dated Calcutta, the 15th July 1885.

From—(X)EORGR KING, ESQ., M.B., L.L.D., Superintendent, Royal Botanic Garden,
Calcutta,

To—The Secretary to the Government of Bengal, Financial Department.

I HAVE the honour herewith to submit the ninety-eighth annual report of the Royal Botanic Garden.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN, CALCUTTA, FOR THE
YEAR 1884-85.

THE progress of the garden during the year has, I think, on the whole, been satisfactory. But little damage has been done by storms, and the low temperature of the cold season worked less mischief than usual amongst the more delicate species cultivated in the conservatories. The conservatories continue to be very attractive to visitors, and every attempt is made by the continual replenishment and re-arrangement of their contents to keep them in as high a state of efficiency as possible. The show of orchids last season was the best that I recollect to have seen since I took charge of the garden. The majority of the many trees planted in the grounds during the past few years have grown well, and the greater part of the garden now presents a fine park-like appearance. The new works put through during the year were not numerous, there being now but little new work necessary. A continuation was made of the boundary wall along the northern limit of the garden. Walls were also made in the neighbourhood of the nursery, the bricks used in building being all made within the garden. An old conservatory which used to stand near the orchid house and in which plants never could be got to thrive well, was removed during the year, and was re-erected in the nursery, where, as a reserve house for the conservatories, it will be of great service. Towards the end of the year Government was pleased to sanction an extra grant of money for the protection of the frontage of the garden to the river. The back, as mentioned in former reports, had in many places become much eroded by the wash caused by steamers passing at a high rate of speed when the river is high. The year before last I was enabled to protect one of the worst pieces of bank, and the further grant given last year should be nearly sufficient to finish the work. The garden still continues rather inaccessible from Calcutta. But I presume that, until public money is more plentiful, this cannot be remedied by the continuation of the Port Commissioners' road from the Shalimar Point to the garden gate.

2. Various plants of economic interest, and especially fibre-yielding species, have received attention during the year.

Economic plant.. ^{At} the request of the Government of India, a further attempt was made to introduce into the province of Bengal the kind of plantain (*Musa textilis*) from which Manilla hemp is derived. Plants of this species were accordingly distributed to the Magistrates of districts. As I anticipated, this attempt (like its predecessors) was a failure, and from the same cause. The low temperature of the cold weather proved too much for the plants and they all died. A small patch of rhea continues to be kept up in the garden, from which quantities of green stems were made over during the year to persons interested in discovering an efficient cheap method of extracting the fibre. Quantities of roots were also distributed to several applicants. Bow-string hemp is a fibre of late has attracted considerable attention. It is no doubt an admirable fibre, and is not difficult of extraction from the plant (*Sansevieria Zeylanica*) that produces it. The plant is not indigenous in this part of India, but it grows well here; and a good many plants of it have been distributed during the year. In several of my recent reports I have referred to the Japan paper mulberry as a hopeful source of paper fibre for Bengal. I am happy to say that the trees of this species in

the garden continue to grow well. Although now only, three years old, they are twenty-five feet high and have proportionately thick stems. The fibre contained in the bark is one of the best materials for paper known. It is easily separated, is strong, and requires little bleaching. As the tree grows thoroughly well and coppices freely, I think it quite possible that, in the course of time, natives may be induced to grow it on the odd corners of land which are so common near Bengali villages. It is gratifying to find that the bhabur or sabai, a native grass to which I first directed attention in my annual report for the year 1877-78, has now become a recognized raw material for paper, and that it is largely used in local manufacture. Mahogany and the various plants yielding India rubber continue to be propagated and distributed as the resources of the garden permit. Much attention has of late been directed to the coca plant, the leaves of which contain an important alkaloid called cocaine, and efforts have been made during the year to propagate quantities of this plant for distribution.

3. The additions to the herbarium during the year were very considerable. A large number of dried specimens, chiefly of European species, was received from Sir J. D. Hooker, the well-known Director of the Royal Garden at Kew. This donation is one of a long series which the Calcutta herbarium has received from the same liberal hand. From the Malayan Peninsula large numbers of dried plants were received. These were mostly collected in the province of Perak by Mr. H. H. Kunstler. These specimens are in admirable condition, and form a very important addition to our collection. Mr. J. Sykes Gamble, Conservator of the Forests of the Northern Circle of the Madras Presidency, contributed many most interesting specimens collected during his extensive tours. Mr. Gamble's collections of former years were both extensive and valuable, and strengthened our herbarium in no mean degree, and to no Indian contribution is the Calcutta herbarium more deeply indebted. Mr. J. F. Duthie, Superintendent of the Saharanpur Botanic Garden, sent a very interesting collection, containing several novelties obtained by himself in the Ghurwal Himalaya. During the exploration in the course of which these plants were brought together, Mr. Duthie penetrated into several remote valleys that have not hitherto been visited by Europeans. It is to be hoped that Mr. Duthie may be allowed to continue his explorations during the present year. Mr. Talbot, Deputy Conservator of Forests in Canara, has during the past, as in former years, sent some excellent specimens illustrating the vegetation of the splendid forests of the Western Ghats, a region of which the vegetation used to be but poorly represented in the collection here. The same good work has been also helped forward by Dr. T. T. Cook of the Science College, Poona, from whom I have to acknowledge the receipt of admirable collections made at Mahabaleshwar. Dr. Trinien of the Botanic Garden, Ceylon; Mr. Hullett of the Raffles Institute Singapore; Mr. C. B. Clarke of the Bengal Educational Department; and Mr. Maries of Durbhunga have all contributed specimens of interest and value. M. Boissier of Geneva, the possessor of one of the largest private herbaria in the world and the author of the admirable *Flora Orientale*, was good enough to present a fine lot of plants, chiefly European and North African. Sir Ferdinand Von Muller of Melbourne continued his contributions of Australian plants. Mr. Croft, Director of Public Instruction in Bengal, presented a curious and interesting collection made by Baboo Sarat Chandra Das at high levels in the Eastern Himalaya. Mr. H. O. Forbes contributed a considerable number of specimens from the Malayan Archipelago. And finally, the herbarium was enriched by the dried plants brought from the Andamans by a native collector sent from this garden, whose work in the Andamans, Mr. M. H. Ferrars (the Forest Officer of the Settlement) was good enough to supervise. The whole of these contributions have been mounted, poisoned, and stowed away in cabinets.

4. The interchange of plants and seeds went on actively. During the year 23,433 living plants were sent out to public institutions in India; and the extent to which botanical institutions beyond India benefited by this garden may be judged of by the fact that the foreign issued occupied 42 Warden

cases. Of seeds, 2,979 packets were distributed. On the other hand, living plants to the number of 12,056 and packets of seeds to the number of 1,201 were received from contributors in India and in various foreign countries. The contributors to whom the garden is chiefly indebted are Sir J. D. Hooker of the Royal Garden, Kew; Dr. Trimen of the Royal Botanic Garden, Ceylon; Mr. Duthie of the Botanic Garden, Saharanpur; the Superintendents of the Botanic Gardens in Demerara, Natal, Mauritius, Hong-Kong, Queensland, and Jamaica; M. Linden, Manager of one of the great nurseries at Ghent. The Superintendents of the Government Gardens at Poona, of the Government Museum at Madras, the Secretaries of the Agri-Horticultural Societies of Calcutta, Madras, Lucknow, and Lahore, have also sent valuable contributions, as have several forest officers. With their accustomed liberality, Messrs. Apcar and Company have given free passes for all cases passing between this garden and Singapore or China.

5. During the first seven months of the year, I was absent on furlough in England, and my duties were carried on during my absence by Mr. L. J. K. Brace, Curator of the herbarium. Mr. G. Urquhart has been Curator of the garden during the year; and Mr. Bahr, who has worked with much zeal and intelligence, has been Assistant Curator in charge of the conservatories and nurseries.

6. The receipts from sale of surplus plants amounted to Rs. 1,075-11-6, which sum was paid into the treasury as Government revenue. This amount fell short of the estimate by Rs. 324-4-6. The revenue by sale of the plants could be increased; but only by encroaching on the trade of private nurseries. And that Government has expressed its determination not to do.

7. In former reports I described the havoc committed in this garden by the grubs of a cockchaffer which appeared in the soil of the Lloyd Botanic Garden, Darjeeling. The grubs appeared in the soil of the garden in myriads and ate up almost every plant that it contained, sparing only the larger trees. During the year under review this pest gradually disappeared, and towards the end of the year Mr. Jaffrey had succeeded in re-stocking the garden with plants of sorts. But many of the rarer kinds, got at considerable expense from Europe and elsewhere, have disappeared, and their replacement must be a matter of time. The grub is, I hear, extending its ravages in the Darjeeling district. It is to be hoped that it will confine itself to the weeds in tea gardens, and that it will spare the tea bushes. The sides of the sanitarium hill above the garden (by slips from which the garden suffered considerable damage in former years), appear at last to have become consolidated; and it is to be hoped no more damage will occur from that source. The vegetable garden owned by the municipality, but worked by Mr. Jaffrey for the Municipal Commissioners, having been greatly damaged by successive landslips, gradually became a losing concern, and was towards the end of the year resumed by the Commissioners, who threaten to build either bazar huts or washing tanks for dhobies on the site. The interposition between the grounds of the Eden Sanitarium and Botanic Garden of buildings of this sort would be a great blot on the amenity of the neighbourhood; and I trust the Commissioners may reconsider their decision and see their way towards restoring the ground to horticultural purposes. Sales of plants to the extent of Rs. 625 (against an estimated revenue of Rs. 300) were made at the garden during the year. Mr. Jaffrey has worked with much enthusiasm and energy under rather depressing circumstances.

8. The usual returns, four in number, are appended.

APPENDIX I.

Statement shipping Plants received from 1st April 1884 to 31st March 1885.

FROM WHOU RECEIVED.				Wardian Cases.	Boxes.	Number of Plants.
Royal Garden, Kew, London	...	...	...	5	1	177
Do. Botanic Garden, Ceylon	...	...	...	4	...	105
Do. ditto, Mauritius	...	...	...	1	...	16
Government Botanic Garden, Saharanpur	...	...	...	...	4	88
Botanic Garden, George Town, Demerara	...	...	...	1	...	8
Ditto, Natal	...	...	...	1	...	3
Ditto, Bowen, Queensland	...	...	...	1	...	68
Ditto, Jamaica	...	...	...	1	...	73
Ditto, Gunesh Khind, Poona	...	...	...	...	1	14
Lloyd Botanic Garden, Darjeeling	...	...	...	...	9	8JO
Agri-Horticultural Society, Calcutta	...	...	...	...	...	84
Compagnie Continental d'Horticulture, Gand	...	...	...	2	...	84'
J. Gammie, Esq., Government Cinchona Plantation, Mungpoo	...	...	...	...	JO	957
Superintendent, Government Museum, Madras	...	...	...	1	2	43
Revenue Settlement and Agricultural Department, Madras	...	...	...	1	...	28
Deputy Post-Master-General, Rangoon	...	...	...	...	1	126
Ditto ditto, I adore...	...	...	...	...	1	5
Government High School, Rangoon	...	...	...	...	1	126
Dr. E. Bonavia, M.D., Etawa	...	...	...	...	...	4
„ T. Beaumont, M.D., Hyderabad	...	...	...	...	2	8
„ J. Reid, M.D., Calcutta	...	...	...	...	...	87
H. G. Batten, Esq., Rangoon	...	...	...	...	1	6J
G. Bartlett, Esq., Calcutta	...	...	...	...	...	125
E. H. Man, Esq., Andamans	...	...	...	1	33	262
C. Maries, Esq., Durbhunga Raj Garden	...	...	...	...	21	999
G. Mc.D. Peché, Esq., Moulmein	...	...	...	...	2	304
A. O. Hume, Esq., C.B., Simla	...	...	...	...	4	225
A. Simson, Esq., Calcutta	...	...	...	...	1	06
W. Stalkart, Esq., Howrah	...	...	...	...	...	4
C. B. Clarke, Esq., Calcutta	...	...	...	...	2	26
J. Parkes, Esq., Sikkim	...	...	...	...	7	489
J. Schaumberg, Esq., Calcutta	...	...	...	...	...	JO
Miss E. Harwood, Calcutta	...	...	...	...	...	6
Collected by Curator	...	...	...	...	...	41
Ditto ditto, Rajapur	...	...	...	...	...	40
Ditto Munshi Abdoolla, Plant Collector	...	...	...	...	24	4,934
Baboo P. C. Sein, Seebpore	...	...	...	...	...	14
„ S. P. Chatterjee, Victoria Nursery, Calcutta	...	...	...	...	...	133
Horee Mally, Nurseryman, Manicktolla	...	...	...	...	...	1,133
Australian Commissioners for the Calcutta International Exhibition.	...	...	...	...	...	29
Bought at auction	...	...	...	...	...	109
Mrs. M. riowden, Algiers	...	...	...	1	...	14
Received from unknown donors	...	...	...	...	...	77
Total				20	127	12,056

APPENDIX II.

Statement showing Plants sent out from 1st April 1884 to 31st March 1885.

TO WHOM SENT.			Wardinn cases.	Boxes.	Nrmbpr of plants.
His Royal Highness the Duke of Connaught	...	...	.....	1	73
Government House Garden, Calcutta	...	...	.....	.....	803
His Excellency the Commander-in-Chief, Simla	...	...	.....	2	30
Royal Garden, Kew, London	...	...	1	3	157
Royal Botanic Garden, Ceylon	...	...	1	2	307
Botanic Garden, Hong-Kong	...	...	2	.....	125
Ditto, Jamaica	...	...	1	.....	35
Ditto, Bowen, Queensland...	...	...	.....	1	50
Government Botanic, Garden, Saharanpur	...	...	.....	13	344
Ditto Garden, Rangoon	...	...	.....	2	77
Ditto ditto, Laroot, Perak	...	...	15	.....	400
Jardin des Plantes, Saigon	...	...	2	.....	87
Coxpagnie Continental d'Horticulture, Gand	...	...	.....	2	279
Lloyd Botanic Garden, Darjeeling	...	...	.....	2	20
Government Agri-Horticultural Gardens, Lahore...	...	...	.....	.....	113
Prince of Wales' Garden, Mozufferpore	...	...	.....	123	2,500
Charkhari State Garden, Fatehpur	...	...	.....	9	140
Public Garden, Bhownuggur	...	...	.....	3	183
Belvedere Garden, Alipore	...	...	.....	.....	12
Zoological do., do.	...	...	.....	.....	389
Agri-Horticultural Society of India, Calcutta	...	...	.....	.....	607
Ditto ditto of Rangoon	...	...	1	.....	20
York Exotic Nursery, Kew, Melbourne	...	...	.....	1	56
W/ Bull, Esq., New Plant Merchant, London	...	...	1	.....	11
Messrs. James Veitch and Sons, Chelsea, London	...	...	1	.....	11
Conservator of Forests, Madras	...	...	4	.....	111
*—Burden, Esq., Bagshot Park, London	...	...	.....	1	78
Dr. Phillip Robert Ruser, Switzerland	...	...	.....	1	6
Colonel Carriok Buohanan, Scotland	...	...	.....	1	76
H. Lumsden, Esq., ditto	...	...	.....	1	98
W. Duff Bruce, Esq., Calcutta	...	...	1	.....	28
Revenue Settlement and Agricultural Department, Madras	...	...	1	.....	30
Magistrate of Chupra	...	...	.....	1	39
Cantonment Magistrate, Dum-Dum	...	...	.....	.....	200
Commissary of Ordnance, Calcutta	...	...	.....	.....	1,835
Executive Engineer, Arrah Division	...	...	.....	6	102
Government Engineer, Colombo	...	...	1	.....	30
Director of Public Instruction, Rangoon	...	...	.....	1	43
Government High School, ditto	...	...	.....	1	93
Upper Military Orphan School, Kidderporo	...	...	.....	.....	50
Catnolio Mission, Assensole	...	...	.....	49	1,000
Officiating Principal, Calcutta Madrasa	...	...	.....	.....	58
Principal Government Engineering College, Seebpore	...	...	.....	.....	67
Ditto, Ravenshaw College, Cuttack	...	...	.....	2	53
Eden Hospital, Calcutta	...	...	.....	.....	1,500
Military Station Hospital, ditto	...	...	.....	.....	787
Medioal College ditto, ditto	...	...	.....	.....	3,100
trigonometrical Survey of India	...	...	.....	.....	80
Calcutta Town Hall	...	...	.....	.....	50
Ditto Bengal Club	...	...	.....	.....	6
Post-Master-General, Rangoon	...	...	.....	14	244
Deputy Post-Master-General, Indore	...	...	.....	1	1
Maohine Experimental Committee, Calcutta	...	...	.....	.....	6
					4 maund of rhea stems.
Surveyor-General's Office Calcutta	...	...	.....	.....	300
Balason Tea Estate, Siltyiri	...	...	.....	2	47
Bub-Deputy Opium Aatnt, Shababad	...	...	.....	17	270
Inspector-General, Railcray Mail Service of India...	...	...	.....	.....	100
Secretary to the Agent, East Indian Railway, Calcutta	...	...	.....	.....	20
Dacca and Mymensipgh State Railway	...	...	.....	11	200
superintendent, Gunpowder Factory, Ichapur	...	...	.....	.....	200

APPENDIX II—continued.

To WHOM BENT.	Wardian cubes.	Boxes.	Number of plants.
Superintendent, Foundry and Shell Factory, Cossipore	86
Ditto, Jails, Midnapore	4	276
Ditto, do., Dinagepore	1	5
Ditto, do., Chittagong	3	50
Ditto, Native Lunatic Asylum, Bhowanipore	10
General Agent, Court of Wards' Estate at Madhupur	1	50
Commissioner of Dacca	1	5
Collector of Chittagong	7	65
Ditto, Shahabad	1	5
Ditto, Maldah	1	5
Ditto, Purneah	1	5
Ditto, Beerbhoom	1	5
Ditto, Bankoora	1	5
Ditto, Eungpore	1	5
Ditto, Nuddea	1	5
Ditto, Jessore	2	10
Ditto, Furreedporo	1	5
Ditto, Backergunge	1	5
Ditto, Mymensingh...	1	5
Ditto, Durbhunga	1	a
Sub-Divisional Officer, Sasseram, Shahabad	6	
Ditto, Jamtara, Sonthal Pergunnahs	7	122
Superintendent, Durbhunga Ilaj Garden	12	354
Port Officer, Calcutta	50
F. J. Atkinson, Esq., ditto	30
A. Apcar, Esq., ditto	52
S. T. Apcar, Esq., Garden Reach	50
J. Asphar, Esq., Calcutta	1	7
J. H. Beck, Esq., Sylhet	130
H. G. Batten, Esq., Eangoon	1	94
G. H. Bartlett, Esq., Calcutta	19
Mrs. Birch, ditto	12
Dr. T. Beaumont, Hyderabad	1	20
„ D. D. Cunningham, Calcutta	127
H. A. Cockerell, Esq., ditto	13
Messrs. L. E. Cantwell & Co., ditto	300
A. Creagh, Esq., Howrah	3
— Death, Esq., Calcutta	60
K. Falconer, Esq., ditto	1	65
J. Gammic, Esq., Mungpoo	1	1
J. H. Gilliland, Esq., Engineering College	9
J. J. C. Hardinge, Esq., liangoou	1	26
A. O. Hume, Esq., Simla	100
W. M. Ilriot, Esq., Manilla	1	34
Miss E. Ilarwood, Calcutta	2	41
J. Ingiis, Esq., Sydney	1	12
E. Irving, Esq., Calcutta	36
Major Joseph, Chinsurah	8
Colonel Jarrott, Calcutta	2
J. Jackson, Esq., Eangoon	12
8 J. Kilby, Esq., Calcutta	23
W. A. Kraal, Esq., ditto	1
C. Kelly, Esq., Howrah	6
H. H. Kunstler, Penang	2	6M
— Lynam, Esq., Kidderpore	4
Surgeon-Major Morphew, Cawnpore	2	24
Marc Meugens, Esq., Calcutta	6
Mrs. Morrison, ship <i>Frank-N-Shaytr</i>	6
Miss Midolo, Calcutta	7
E. H. Man, Esq., Andamans	2	69
J. Moore, Esq., Serampore	1	1,027
			4 maund of rhcea stems.
A. H. Mason, Esq., Engineering College	14
Messrs. J. Mackilliran & Co., Calcutta	1	23
Captain MacMahon, steam-ship <i>Clan Sinclair</i>	1	51
J. Ilvellu, Esq., Seebpore	3	3

APPENDIX II—concluded.

TO WHOM SENT.				Ward inn cases.	Bozos.	Number of plants.
Rev. A. L. Mitchell, Howrah	...	...	...	...	...	3
Dr. H. B. Purves, Burdwan	...	...	...	...	2	16
„ J. G. Pilcher, Howrah	...	...	...	...	...	35
R. Pantling, Esq., Mungpoo	...	...	...	...	1	72
W. Pigott, Esq., Calcutta	...	...	...	...	...	30
Captain Richards, ditto	...	...	...	...	...	4
Hon'ble H. J. Reynolds, c s i., Calcutta	...	...	...	...	...	14
H. H. Remphrey, Esq., ditto	...	...	...	...	...	18
A. Simson, Esq., ditto	...	...	...	...	...	18
J. Schaumberg, Esq., ditto	...	...	...	...	...	30
A. G. Tytler, Esq., Sarun	...	...	...	...	2	20
C. P. Tonnerre, Esq., Rampore Hat	...	...	...	...	3	65
W. Valentine, Esq., Calcutta	...	...	...	...	...	1
Rev. J. S. Whitney, Barrackpore	...	...	...	...	...	100
C. R. Wolterton, Esq., Calcutta	...	...	...	...	...	6
A. Wilson, Esq., ditto	...	...	...	...	...	1
Messrs. Walsh, Lovett & Co., ditto	...	...	...	1	...	36
Seebpore Post Office	...	...	...	...	...	30
Rao Raja Krisno Deo Scree Sing, Benares	...	...	...	...	4	41
Baboo P. C. Sein, Seebpore	...	...	...	...	...	305
„ S. C. Sein, ditto	...	...	...	...	...	3
„ B. B. Ghosh, ditto	...	...	...	...	...	20
„ G. C. Dutta, ditto	...	...	...	...	...	25
„ D. N. Basu, Calcutta	...	...	...	...	...	1
„ & P. Chatterjee, Victoria Nursery, Calcutta	...	...	...	...	...	147
„ N. C. Mookerjee, Calcutta	...	...	...	...	...	8
„ K. C. Mullick, Chinsurah	...	...	...	...	...	3
„ P. N. Basu, Calcutta	...	...	...	...	...	21
„ T. N. Mullick, ditto	...	...	...	...	...	6
„ R. C. Singh, ditto	...	...	...	...	...	40
„ G. C. Chuokerbutty, Seebpore	...	...	...	...	...	6
„ J. Gangooly, ditto	...	...	...	...	...	5
„ G. C. Koy, Dwarhatta	...	...	...	...	...	1
„ R. N. Mookerjee, Bally	...	...	...	...	...	2
„ K. K. Gooho, Mymensingh	...	...	...	...	1	12
„ O. C. Singh, Bhagulpore	...	...	...	...	1	14
„ R. R. Koondoo, Calcutta	...	...	...	...	...	1
„ K. M. Dutta, Gobardanga	...	...	...	...	4	100
„ P. C. Mondol, Noola	...	...	...	...	...	9
„ R. D. Ghosh, Howrah	...	...	...	...	...	10
„ K. P. Ghosh, Calcutta	...	...	...	...	...	2
„ G. N. P. Chowdhury, Calcutta	...	...	...	...	...	18
„ K. M. Dutta, Gobardanga	...	...	...	...	...	75
„ O. C. Mozoomdar, Seebpore	...	...	...	...	...	3
„ R. D. Ghose, ditto	...	...	...	...	...	4
„ G. P. Mookerjee, Gobardanga	...	...	...	...	...	6
„ K. N. Gangooly, Seebpore	...	...	...	...	...	2
„ J. C. Biswas, Calcutta	...	...	...	...	...	22
„ Rameshwar Malliah, Howrah	...	...	...	...	...	18
„ S. C. Ghosh, Calcutta	...	...	...	...	...	3
„ G. L. Roy, ditto	...	...	...	...	5	84
„ B. C. Banerjee, Seebpore	...	...	...	...	1	13
„ A. K. Dutta, Bally	...	...	...	...	...	M
„ N. S. Dutta, Howrah	...	...	...	...	...	6
„ Tilok Chandra, Calcutta	...	...	...	...	...	3
Burmanundo Siren, Cuttaok	...	...	...	...	...	3
Horee Mally, Nuneryman, Manicktolla	...	...	...	...	...	34
Prince Noorooddi Khan, Russapugla	...	...	...	...	...	25
Meea Abdool Sohan, Dacca	...	...	...	...	...	9
Sheikh Nohim, Mateabrooj	...	...	...	...	...	4
Moulvio Komeruddin, Garden Reah	...	...	...	...	...	22
Nasamot Ali, Mateabrooj	...	...	...	...	...	2
Sayed Fazul Uosseini, Jalalpore, Oudh	...	...	...	...	1	4
Meea Khoda Bux, Moorshedabad	...	...	...	...	...	14
Total				43	373	23,133

2 maunds
of rhea
stems.

APPENDIX III.

Statement of Seed* received from 1st April 1884 to 31st March 1885.

From whom received.				Number of parcels or packets.
Sir J. D. Hooker, K.C.S.I., C.B., F.R.S., &O., Director, Royal				
Garden, Kew, London	...	...	...	321
Botanic Garden, Jamaica	...	...	...	21
Ditto, Natal, Africa	...	...	...	34
Ditto, Hong-Kong, China	...	...	...	7
Ditto, George Town, Demerara	...	...	...	6
Ditto, Ceylon	...	...	...	6
Ditto, Gunesh Khind, Poona	...	...	...	103
Ditto, Saharunpur	...	...	...	112
Ditto, Darjeeling	...	...	...	162
Sir Ferdinand Von Muller, F.R.S., Melbourne, Australia	...	...	...	5
Directeur, Compagnie Continentale d'Horticulture, Gand, Bel-				
giun	...	...	...	3
Ditto Jardin des Plantes, Saigon	...	...	...	25
Professeur de Culture, Museum de Histoire, Naturelle, Paris	...	...	...	1
Director of Agriculture and Commerce, Bangoon	...	...	...	4
Secretary, Agri-Horticultural Society, Lahore	...	...	...	1
Ditto ditto, Gordon, Lucknow	...	...	...	49
Ditto ditto, Society of India, Calcutta	...	...	...	2
D. Morris, Esq., M.A., F.L.S., & C. Gordon Town, Jamaica	...	...	...	4
James Francis, Esq., Cedar Valley, Jamaica	...	...	...	1
James Inglis, Esq., Sydney, Australia	...	...	...	1
Messrs. C. A. J. Black, Toowoomba, Queensland	...	...	...	75
Assistant Conservator of Forests, Koliabar, Assam	...	...	...	3
Ditto ditto, Xanara, Bombay	...	...	...	1
Forest Officer, Hazaribagh, Bengal	...	...	...	1
E. H. Man, Esq., Port Blair, Andamans	...	...	...	160
Munshi Abdoolla, Plant Collector, Port Blair, Andamans	...	...	...	67
C. Maries, Esq., Baj Durbhunga, Behar	...	...	...	1
Dr. R. A. Barker, Civil Surgeon, Dumka, Behar	...	...	...	1
„ G. Bidie, C.I.E., Superintendent, Central Museum, Madras	...	...	...	1
„ George King, London	...	...	...	2
L. J. K. Brace, Esq., Curator of the Herbarium	...	...	...	1
J. Gammie, Esq., Government Cinchona Plantation, Mungpoo	...	...	...	1
J. L. Lister, Esq., Darjeeling	...	...	...	3
Messrs. Williamson, Magor & Co., Calcutta	...	...	...	1
A. Cheetham, Esq., Calcutta	...	...	...	1
G. W. Bartlett, Esq., Calcutta	...	...	...	1
Unknown donor	...	...	...	11
Baboo Prosunno Coomar Sein, Seebpore	...	...	...	1
Mugdooxbux, Durwan	...	...	...	1
Total				1,201

APPENDIX IV.

Statement showing Seeds distributed from the Royal Botanical Garden during the year 1884-85.

To whom sent.				Number of parcels or packets.
Sir J. D. Hooker, K.C.S.I., C.B., F.R.S., &C, Director, Royal				
Garden, Kew, London	...	...	...	214
Dr. Begel, Imperial Garden, St. Petersburg, Russia	...	...	...	1
Botanic Garden, Sydney, Australia	...	...	...	1
Ditto, Melbourne, Australia...	...	...	...	10
Ditto, Edinburgh	...	...	...	29
Ditto, Glasnevin, Dublin	...	...	...	193
Ditto, Durban, Natal	...	...	...	6
Ditto, Cape Town	...	...	...	1
Ditto, Baden, Germany	...	...	...	1
Ditto, Hobart Town, Tasmania	...	...	...	2
Ditto, Buitenzorg, Java	...	...	...	49
Ditto, Hong-Kong, China	...	...	...	7
Ditto, Mauritius...	...	...	...	7
Ditto, Gordon Town, Jamaica	...	...	...	17
Ditto, George Town Demerara	...	...	...	3
Ditto, Peradeniya, Ceylon	...	...	...	24
Ditto, Gunesh Khind, Poona	...	...	...	3
Ditto, Ootacamund, Madras...	...	...	...	6
Ditto, Saharanpur	...	...	...	36
Ditto, Darjeeling	...	...	...	432
Directeur, Compagnie Continentale d'Horticulture, Gand, Belgium				273
Ditto, Jardin des Plantes. Saigon	...	...	...	1
Secretary to the Acclimatization Society, Brisbane, Queensland				3
Ditto Agri-Horticultural Society, Madras	...	...	...	5
Ditto ditto ditto, Lahore	...	...	...	2
Ditto ditto ditto of India, Calcutta...	...	...	...	8
Superintendent, Agri-Horticultural Garden, Lucknow	...	...	...	17
Member, Madras Agri-Horticultural Society, Uevikulan	...	...	...	1
Secretary and Engineer, Akyab Municipality, Akyab	...	...	...	2
Sir John Kirk, M.D., C.M.G., &O., Her Britannic Majesty's Consul-General, Zanzibar	...	...	...	10
William Bull, Esq., King's Road Chelsea, London	...	...	...	33
Messrs. James, Veitch and Sons, Ring's Road Chelsea, London	...	...	...	32
" Haage and Schmidt, Erfurt, Prussia	...	...	...	17
" G. Bremming and Son, St. Kilda Nurseries, Melbourne	...	...	...	9
Sir Ferdinand Von Muller, F.R.S., University, Melbourne	...	...	...	3
"W. G. Head, Esq., Horticultural Department, Crystal Palace, London	...	...	...	1
(?) P. Wilson, Esq., Heatherbank, London	...	...	...	25
Major J. N. Laurence Archer, White Hell Park, London	...	...	...	4
Messrs. Brown, Shipley & Co., Liverpool, England	...	...	...	88
Bright Hon'ble the Earl of Ilohester, Dorchester	...	...	...	44
E. J. C. Brace, Esq., Les Vaux, Par Galbris, Loir et Cher, France	...	...	...	3
D. Morris, Esq., M.A., F.L.S., &C, Director, Public Gardens and Plantations, Gordon Town, Jamaica...	...	...	...	6
W. Kirwood, Esq., M.D., Bahamas, West Indies	...	...	...	1
Herr Christian Scheving, Caudfiharm, St. Thomas', West Indies	...	...	...	1
His Honor G. B. A. Taylor, Nassau, N. P. Bahamas, ditto	...	...	...	1
Patrick Campbell, Esq., Milton Hill, Queensland, Australia	...	...	...	0
TJnder-Secretary, Department of Marine, New South Wales, Sydney	...	...	...	1
F. A. Bailey, Esq., General Post Office, Perth, West Australia	...	...	...	91
James Inglis, Esq., 28, Charlotte Place, Sydney, Australia	...	...	...	4
William feoott, Esq., Aoiing Director, Mauritius	...	...	...	43
C. Creagh, Esq., Her Britannic Majesty's Assistant Besidont, Laroot, Perak	...	...	...	111
L. Wray, Tsq., Laroot, Perak	...	...	...	1
C. E. Wevdon, Esq., Upoot, Maskeliya, Ceylon	...	...	...	1
Messrs. F^ P. William and Brothers, Heneratgoda,	...	...	...	1
Commit {Oner of Bhagulporo Division	...	...	...	1
Ditto Burdwan ditto	...	...	...	1
Ditto Orissa ditto	...	...	...	1
7>itto Dacca ditto	...	...	...	x
Ditto Chittagong ditto	...	...	...	1
Ditto Chota Nagporo ditto	...	...	...	1
Ditto liajshabjo Divisiou	...	...	...	1

APPENDIX IV—continued.

To whom sent.		Number of parcels or packets*
Deputy Commissioner, Arrakan Hill Tracts	...	4
Ditto, Hoshiarpur, Punjab	...	1
Conservator of Forests, Madras	...	3
Ditto, Baroda Raj, Bombay	...	1
Ditto, Dehra Dun	...	1
Ditto, Bankoora	...	39
Ditto, Moulmein	...	1
Ditto, Rangoon	...	1
Ditto, Lnhore	...	1
Ditto, Darjeeling	...	1.
Deputy Conservator of Forests, Chittagong Division, Rangamati	...	7
Ditto ditto, Dharwar, Bombay...	...	1
Assistant ditto, Ajmere	...	4
E. H. Man, Esq., Port Blair, Andamans	...	16
C. Maries, Esq., Superintendent, Raj Durbhunga Garden	...	71
Lieutenant-Colonel O. Cowie, Commissary of Ordnance, Calcutta	...	54
Ditto Barnard Smith, Assistant Commissary-General, Balooahat	...	1
Ditto A. J. C. Birch, Commandant, 25th Punjab Infantry, Mooltan	...	1
Lieutenant Leonard O. Peters, 17th Madras Native Infantry, Secunderabad	...	2
Colonel the Hon'ble S. T. Trevor, R E., Calcutta	...	39
Lieutenant N. X. Gwynnee, Shropshire Light Infantry, Malta...	...	;3
Brigadier-General H. C. Wilkinson, C.B., Presidency District	...	1
Dr. Bidie, Central Museum, Madras	...	2
„ Purves, Burdwan	...	6
M. R. "Weld, Esq., Masulipatam	...	12
Harold Hall, Esq., Pulliampetta	...	2
Director of Agriculture, Rangoon	...	1
Ditto Revenue Settlement and Agriculture, Madras	...	1
Officiating Director of Agriculture, Nagpore	...	1
Superintendent of Jail, Balasore	...	1
Honorary Superintendent, Government Garden, Rangoon	...	1
J. Coles Hardinge, Esq., Rangoon	...	4
Dr. M. A. Lawson, Ootacamund	...	j
Captain Symons, S. 8. Pekin	...	150
Thomas Barnard, Esq., Buxar	...	(;
J. Gammie, Esq., Mungpoo	...	^
C. H. Pillans, Esq., Phoolbarrie Tea Company, Limited	...	8
R F. Martin, Esq., Julpigoree	...	g
T. F. Peppe, Esq., Arrah	...	6 ^
Executive Engineer, Arrah Division	...	4
Ditto, Burdwan Division	...	1
District Engineer, Rungpore	...	1
Engineer-in-Chief, Dacca and Mymensingh State Railway	...	1
Sub-Euginoer, Public Works Department, Aska	...	1
Chief Engineer and Secretary to Government of Bengal, Public Works Department, Calcutta	...	24
Agency Engineer, Rajkot, Bombay	...	0
P. W. Brown, Esq., Ellore	...	j
Mrs. Blake, (humparun	...	j
Claude J. Dumraine, Rampore	...	2
F. H. Jones, Esq., Mozutferpore	...	j
T. Norman, Esq., ditto	...	51
Commandant, Chunar	...	4
E. M. R. Bailard, Esq., Jomalpur	...	2
Political Agent, Manipur	...	j ^
A. I^reons, Esq., Simla	...	1_f
G. S. Tilly, Esq., Hazaribagh	...	4 ^
Cantonment Magistrate, Dinapore	...	1
C H. Sovonoaks, Esq., Midnajor	...	1
W. F. Meres, Esq., ditto	...	1
W. S. Crowdy, Esq., Horsingporo	...	1
President, Eurasian and Anglo-Indian Association, Bangalore	...	1
Major H. B. Abbott, Political Agent, Jhallawor	...	1
Lieutenant W. C. Howden, Commandant, Kohima, Naga Hills	...	6
Collector of Cjorakhjoro	...	1
Manager, Land Mortgago Bank of India, Calcutta	...	16
Ditto, (Joint of Wards, Awabgurh Estate, Etah	...	1

APPENDIX TV—concluded.

To whom sent.	Number of parrels or packets.
E. T. Atkinson, Esq., Calcutta	15
Lady Helen Blackwood, Government Place, Calcutta	44
George W. Campbell, Esq., Great Eastern Hotel, Calcutta	15
A. B. Cobb, Esq., United States Consulate, Calcutta	101
Consul-General for France, Calcutta	2
R. W. Mitchell, Esq., British Guiana Emigration Agent	1
Messrs. Stanley, Price and Co., Calcutta	1
„ Begg, Dunlop and Co, ditto	2
„ Carlises, Nephews and Co., ditto	1
R. C. C. Hickson, Esq., M.D., Calcutta Station Hospital	1
N. P. Seebbo Reddie, Esq., Nattaput	1
Budun Lushkur	1
Baboo Bissumbhur Ghosh, Seebpore	1
„ Chandra Nath Chowdhery, Beauleah	1
„ Devendranath Bose, Calcutta	4
„ Girja Bhussun Roy, ditto	1
„ Gurudass Koondoo, Aundul	8
„ Haripada Bhattacharjee, Mymensingh	2
„ Keeub Chandra Chatterjee, Seebpore	4
„ Kally Prosunno Ghosh, Calcutta	1
„ Khetter Nath Dutta, ditto	1
„ Netto Lali Chatterjee, ditto	2
„ Nobin Chundra Roy, Lahore	2
„ Prosunpo Coomer Banerjee, Calcutta	7
„ Prosunno Coomer Sein, Seebpore	2
„ Protap Narayan Singh, Bankoora	1
„ Satis Chandra Chatterjee, Seebpore	10
„ Taooor Dass Banerjee, Calcutta	48
Total	2,979

MUNICIPAL DEPARTMENT. "

MEDICAL.

DAEJEELING, THE 11TH SEPTEMBER 1885.

RESOLUTION.

BEAD—

THE Annual Report on the Royal Botanic Gardens, Calcutta, for the year 1884-85.

THE unusual mildness of the last cold season exerted a favourable influence on the more delicate plants cultivated in the conservatories, while the show of orchids was the most magnificent that has been seen for many years. A large number of the numerous trees planted during the past few years have grown well, and the garden now presents a fine park-like appearance, for which the public of Calcutta, no less than the Government, are indebted to Dr. King.

2. The cultivation of several economic plants engaged the attention of the Superintendent during the year. A fresh attempt was made to introduce the plantain (*Musa textilis*) from which Manilla hemp is derived; but, as on previous occasions, the cold weather proved fatal to every plant of this species. Of the *Hilea* plant, both stems and roots were distributed among persons interested in discovering a proper method of extracting the fibre. Another fibre, which has lately attracted considerable attention, is bow-string hemp, the product of the plant *Sansevieria Zeylanica*. Although not indigenous, the tree grows well in Bengal, and the fibre is said to be admirable, while it is easy of extraction from the plant. Dr. King reports as follows on the Japan paper mulberry—

" In several of my recent reports I have referred to the Japan paper mulberry as a hopeful source of paper fibre for Bengal. I am happy to say that the trees of this species in the garden continue to grow well. Although now only three years old, they are twenty-five feet high, and have proportionately thick stems. The fibre contained in the bark is one of the best materials for paper known. It is easily separated, is strong, and requires little bleaching. As the tree grows thoroughly well and produces freely, I think it quite possible that, in the course of time, natives may be induced to grow it on the odd corners of land which are so common near Bengali villages.

The *Sabai* grass, the suitability of which as a raw material for paper has been established beyond doubt, is now largely used in local manufacture. Attention has lately been given to an important alkaloid, called cocaine, which is extracted from the leaves of the cocoa plant; and this plant is now being propagated to a large extent for distribution.

3. There have been considerable additions to the collection of dried plants, the contributors being Sir J. D. Hooker, Mr. Kunstler, Mr. Gamble, Mr. Duthie, Mr. Talbot, Dr. Cooke, and several others. The interchange of seeds and plants went on actively during the year, the issues amounting to 28,488 living plants, and 2,979 packets of seeds; and the receipts to 12,056 living plants, and 1,201 packets of seeds. The receipts from sale of surplus plants amounted to Rs. 1,075-11-6.

4. The *Lbyd Botanical Gardens, Darjeeling*, which had suffered severely in recent years from the depredations of cockchafer grubs, were comparatively free from this pest during the year under review. The grub has gradually disappeared, and the garden has once more been stocked with varieties of plants. It is to be hoped that the grub, which is said to be extending its ravages in the Danieeling district, will display no partiality for tea. Dr. King states that there is some possibility of the site of the old municipal vegetable garden, situated between the Eden Sanitarium and the Botanical Gardens, being used either for dhobie's huts or washing tanks. The Lieutenant-Governor

considers that this would be most undesirable, and trusts that Dr. King may be able to make some arrangement with the Municipal Commissioners to prevent it, A special report on the subject should be submitted.

5. The thanks of the Lieutenant-Governor are again due to Dr. King and his subordinates for the excellent work done during the year. For the first seven months of the year Dr. King was on furlough, and his duties were carried on by Mr. Brace, the Curator of the Herbarium.

ORDER.—Ordered that copies of the Report and of the Resolution be submitted to the Government of India in the Revenue and Agricultural Department for information.

Ordered also that a copy of the Resolution be forwarded to the Superintendent of the Botanical Gardens for information.

By order of the Lieutenant-Governor of Bengal,

J. WARE EDGAR,

Ofg. Secy, to the Oovt. of Bengal.

No. 1732T—M.

COPY forwarded to the Superintendent of the Botanical Gardens, Calcutta? for information.

By order of the Lieutenant-Governor of Bengal,

G. K. LYON,

Ofg. Under-Secy. to the Oovt. of Bengal.

DARJEELING ;
The 11th September 1885.

ANNUAL REPORT ON THE ROYAL BOTANIC GARDEN, FOR THE
YEAR 1885-86.

No. 21G, dated Calcutta, the 14th May 1886.

From—SURGBON-MAJOR GEORGE KING, M.B., Superintendent, Royal Botanic
Garden, Calcutta,

To—The Secretary to the Government of Bengal, Financial Department.

I HAVE the honour herewith to submit the ninety-ninth Annual Report of
the Royal Botanic Garden.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN FOR THE YEAR 1885-86.

BUT little in the way of change has been effected during the year, and the energies of the establishment have been chiefly directed to keeping up as high a standard of cultivation and arrangement as possible amongst the plants in the conservatories and grounds. With the latter object the conservatories were to a large extent replanted, old and worn out plants being removed to make way for new and more vigorous specimens. The results even within the year have been very obvious, for the show of orchids during the last season was the finest we have had since I took charge of the gardens, and the general appearance of the plant-houses is, I think, better than it has ever before been. Many of the borders out of doors have been replanted, and a good deal of thinning and pruning have been effected amongst the trees. The garden buildings are in good order, the old house in which the office and seed establishments are located having been put into serviceable repair towards the end of the year by the Department Public Works. The river bank, which used to be a source of some anxiety, having, as reported by me last year, been ballasted by brick rubbish from Akra, is now in comparatively good order, and by a further small expenditure, it should, I think, cease to be a source of trouble for some time to come. The pump established a year or two ago on the river bank for the purpose of keeping the water in the garden lakes at a high level has worked well. The number of visitors seem to me to be increasing, and were the garden entrance to be made a calling point for the passenger steamers that now ply on the river, the number would no doubt be still further increased.

2. Through the kindness of Sir J. D. Hooker, of Kew, and of Mr. Morris,
Economic pUnti. °* ^e Botanic Department in Jamaica, an unusually
nomic pian large quantity of mahogany seed was sent to the
garden during the year. Much of this was distributed; and the remainder,
having been sown in the nurseries, germinated so successfully that there are
now ready for issue about 20,000 healthy young seedlings. Besides these
mahoganies, many seedling timber trees of useful sorts have been prepared for
distribution, so that the efforts of the Agricultural Department to promote
arboriculture in the Province may be facilitated so far as the garden resources
permit. In former reports I referred to the paper mulberry which supplies
the material from which the *tappa* cloth of Polynesia and the bulk of the paper
of China and Japan are manufactured, and I expressed a hope that this tree
may one day be commonly grown in the odd scraps of ground which are so
numerous round the villages of Bengal. I am glad to say that a year's
further experience confirms me in the belief that the tree is perfectly at home
in this part of the country, and that there is no reason why this hope should
not be ultimately fulfilled. Our oldest trees (now about four years old) are
thirty feet high: they yield seed freely, and send up numerous shoots from
their roots, provided the latter be cut under ground by the free use of the
hoe in the neighbourhood of the tree. The Japanese cultivate the plant
very much in the same way that osiers are grown in England, and
for paper manufacture they use only the young shoots. This is a kind of
cultivation especially suited for waste nooks and corners in Bengal. And
as the bark has been pronounced by English paper-makers to be nearly, if not

quite, the best of paper fibres, the cultivation seems to offer encouraging prospects. The bark is of a very white colour; it yields about 58 per cent, of bleached fibre, and requires very little bleaching. The utilisation of the fibre of the common plantain, to which I had in former years directed some attention, seems at last to have been brought within the range of possibility by the invention, by¹ a retired officer of the Madras Army, of a simple, portable, and withal very simple machine. This machine is now being patented, and, if it answers as well as it appears to promise, a great step will have been gained in turning to account an immense amount of useful fibre which is at present hopelessly wasted. A small supply of the tubers of an eatable umbelliferous plant, named *Arracacha esculenta*, were sent to this garden from Kew two years ago. As the climate of Calcutta was considered unsuitable for their cultivation, these tubers were sent to Mungpoo, where, under Mr. Gammie's care, some of them are now thriving well. As the tubers are still few in number and too precious to be sacrificed for food, I have not tasted this new vegetable. In Jamaica,* where it is common, they are described as resembling a parsnip in flavour, and as acquiring a weight of from 8 to 10 pounds in less than a year. The cultivation and distribution of coca, rheea, and other economic plants has received attention during the year.

3. The herbarium has been materially increased during the year by* the receipt of various important contributions. Chiof
Herbarium. among these is the series of specimens of Malayan plants collected by Mr. H. H. Kunstler, the specimens being, as usual, well-dried and in excellent order. From the higher regions of the Eastern Himalaya, a considerable number of rare plants were brought by Mr. Pantling and by native collectors in the pay of the garden. Mr. Duthie, of the Saharanpur Botanic Garden, contributed an interesting series of specimens collected by him in the higher parts of the Kumaun Himalaya. From the forests of the northern part of the Madras Presidency, Mr. J. S. Gamble sent some most valuable specimens, as did Mr. C. B. Clarke and Mr. G. Mann from Assam and the Khassia Hills. M. Boissier, a distinguished European botanist, presented some sets of European and African species, and Sir Joseph Hooker, of Kew, presented his final contribution from the Gay collection. To forest officers in various parts of the country the herbarium is indebted for many interesting specimens of rare or little known trees. Amongst these, the contributions of Mr. Talbot, Deputy Conservator of the Canara forests, and Mr. R. Ellis, Deputy Conservator of the Chittagong Hill Tracts, have been the most interesting. Baron Von Mueller, of Melbourne, who has for years been a faithful contributor to this herbarium, has this year again continued his generous donations. From Professor Engler, of Breslau, were received a fine set of named *Aroidew*—a difficult order in which he is leading authority. Dr. T. Cooke, of the Science College, Poona, sent a fine series of specimens illustrating the flora of Mahableshwar. Dr. Giles, the naturalist with the Gilgit Expedition, has sent at several times sets of most interesting plants from that remote and little-known region of the Himalaya. From Dr. Treub, Director of the Botanic Garden, Buitenzorg, Java, were received a suit of specimens of *Sapotacee* named by Dr. Burck, who has recently published a monograph of the family. To Mr. Curtis, of the Penang Forest Service; Mr. Hullett, of the Rallies Institute, Singapore; Revd. Mr. Campbell, of the Scotch Mission in Manbhoom; and Major Sedgewick, R.E., the herbarium is also indebted for interesting contributions.

4. The issue of plants for the year reached the high figure of 53,752. interchange of punu ana-oa, This is considerably in excess of the number distributed in former years. The increase is chiefly due to the fact that 20,000 plants of *rheea* were given to two commercial firms who were anxious to give the cultivation of this valuable fibre-vielder a trial. The remaining 34,000 plants were given, as will be seen by a reference to the appended distribution list, chiefly to public institutions* in this country and abroad. On the other hand, 9,251 plants were received. Packets of seeds to the number of 3,292 were distributed to recipients of the same sort; and 914 packets were received. The gentlemen to whom the garden is chiefly indebted for contributions are Sir J. D. Hooker and Air. Thiselton Dyer, of the Kew Garden; the Directors of the Botanic Gardens

of St. Petersburg, Hongkong, Natal, Demerara, Adelaide, and Java; the Superintendents of the Gardens at Saharanpur and Poona; Messrs. Yeitch and Bull, Nurserymen, London; Mr. J. S. Gamble and the officers subordinate to him in the Forest Department of the Madras Presidency; Colonel T. Cadell, v.c., and Mr. G. H. Man, Andaman*; Mr. Barton Groves and Colonel Berkeley, Rangoon; Colonel Perreau, Calcutta; Mr. Maries, Durbhunga; and Mr. Ridley, Lucknow. I have also to thank the officers of the cinchona establishment—Messrs. Gammie, Pantling and Parks—for many orchids sent down from Sikkim. A large number of plants were also received in excellent order from Mr. H. H. Kunstler, Perak.

5. Government having decided to send an expedition to Lhasa, and
 „ „ A „ ... Dr. D. D. Cunningham, of the Bengal Medical
 Collecting Expeditions. a • i - " i • J - J A - .

Service, having been appointed to accompany it in the capacity of Botanist, Meteorologist, and Naturalist, I have fitted out Dr. Cunningham with collecting materials, and have supplied him with experienced native collectors. As Europeans have hitherto been rigorously prevented from crossing the pass into Eastern Thibet, the botany of the route to Lhasa is but imperfectly known, and Dr. Cunningham's collections cannot fail to be most interesting. A native collector has been employed during the greater part of the year in the Chittagong Hill Tracts, and I intend to retain him there for some time to come.

6. The Lloyd Botanic Garden at Darjeeling is slowly recovering from the ravages of the hosts of cockchaffer grubs which killed almost everything in it except the larger trees. It is to be hoped that this dreadful pest has now finally been got rid of. But, as there are a good many of the same kind of grubs in private gardens in the station, I am by no means confident on the point. The vines in the conservatory yielded a few bunches of grapes during the year. But owing, no doubt, to the absence of sufficiently bright sunlight during the rainy season, the fruit was rather small and sour. I fear the Eastern Himalaya is pretty nearly hopeless as a home for any European fruit except the strawberry, and the success of even that is not much to boast of. There is now an excellent road leading from near the lower entrance to the convent, along the side of the sanitarium hill, into the garden. The necessity of passing through the bazar in order to reach the garden is now therefore obviated. The slopes of the sanitarium hill have now become consolidated, and they are beginning to be well covered with grass, and as the trees which have been planted on them grow up, the whole hill should become a great ornament to the station. The only thing which appears likely to interfere with this desirable result is the possible erection of a native bazar, or of dhobies' washing tanks, on the three-acre plot of ground belonging to the municipality which is wedged in on the eastern slope between the grounds of the sanitarium and the Botanic Garden. This bit of ground used to be worked as a vegetable garden, but, as has been explained in previous reports, it was for some years a financial failure on account of landslips caused by the building operations connected with the sanitarium. These building operations have long since ceased, and there is no reason now to fear the destruction of the vegetable crop by landslips. I have therefore been in communication with the municipality for the resumption of vegetable growing by the Curator, but hitherto without entire success. The acclimatised potatoes, raised from some of the best English kinds, were freely distributed from the garden some years ago, and the benefit of this proceeding is now being realised in the marked improvement of the quality of the potatoes brought to the public market for sale.

7. The budget allotment of the Calcutta garden for the year was Us. 69,870, which was all expended. The sum of Us. 1,091-12 realised from the sale of surplus plants, grass, &c, was paid into the treasury as revenue, being less than the estimate by Us. 308-4. As has been explained in former reports, the garden is not worked for revenue; only surplus plants being sold and care being taken not to interfere with the operations of private nursery-men who have to live by their business. The expenditure on the Lloyd Botanic Garden at Darjeeling for the year amounted to Us. 7,372, being Us. 1,107 below the original estimate; while the sales of surplus plants produced the sum of Us. 741, which was paid into the Government treasury. The sales were in excess of the estimated revenue by Us. 441.

8. Several changes took place in the European staff during the year. Mr. Jaffrey, who had been Curator of the Lloyd Botanic Garden since its beginning, died suddenly of heart disease in November. Mr. Jaffrey was an excellent gardener, and was devoted to his work, while his obliging and courteous disposition had made him a general favourite in the station. Mr. Jaffrey's place was filled by the transfer of Mr. W. Kennedy from the Cinchona Plantation. Mr. G. Urquhart, Curator of the Calcutta garden, having retired from the service of Government during the year, Mr. Half dan Bahr was made Curator in his stead—a piece of thoroughly well-deserved promotion. Mr. L. J. K. Brace, Curator of the Herbarium, was absent on sick leave during half the year, and his place was temporarily filled by Dr. D. Prain, a young officer of the medical service, who possesses an excellent knowledge of botany, together with much energy and enthusiasm.

9. The usual returns, four in number, are appended.

APPENDIX I.

Statement showing plants received from 1st April 1885 to 31st March 1886.

FROM WHOM RECEIVED.				Wardian cases.	Boxot.	Number of plants.
Royal Garden, Kew, London	...	...	...	2	2	167
Government Botanic Garden, Saharanpur	...	...	...	1	1	454
Botanic Garden, George Town, Demerara	...	...	...	1	...	11
Ditto, Natal	...	...	...	1	1	72
Ditto, Jamaica	...	...	...	...	...	181
Ditto, Hong-Kong	...	...	...	3	...	71
Ditto, Java	...	...	...	1	...	67
Ditto, Gunesh Ehind, Poona	...	...	...	...	4	36
Lloyd Botanic Garden, Darjeeling	...	...	...	...	4	918
Agri-Horticultural Society, Calcutta	...	...	...	...	...	99
Eden Garden, ditto	...	...	...	...	...	18
Zoological Garden, ditto	...	...	...	...	...	24
W. Bull, Esq., New Plant Merchant, London	...	...	...	1	1	91
Messrs. James Veitch and Sons, Chelsea, London	...	...	...	1	1	79
J. Gammie, Esq., Government Cinchona Plantation, Mungpoo	...	...	...	...	16	679
S. T. Apar, Esq., Garden Beach	...	...	...	...	...	5
T. C. Anderson, Esq., Ceylon	...	...	...	...	...	127
Colonel E. Berkeley, Rangoon	...	...	...	...	1	122
Sir E. Bradford, Rajputana	...	...	...	...	...	2
H. G. Batten, Esq., Kangoon	...	...	...	...	1	79
G. Bartlett, Esq., Calcutta	...	...	...	...	...	2
Dr. D. D. Cunningham, Calcutta	...	...	...	...	...	85
C. Curtis, Esq., Penang	...	...	...	1	...	20
Colonel T. Cadell, v.c., Andamans	...	...	...	5	...	753
J. S. Gamble, Esq., Madras	...	...	...	3	2	90
J. Barton Groves, Esq., Rangoon	...	...	...	...	3	302
P. Hordern, Esq., ditto	...	...	...	...	2	79
A. O. Hume, Esq., C.B., Simla	...	...	...	...	...	163
Miss E. Harwood, Calcutta	...	...	...	...	...	225
Colonel Jarrett, ditto	...	...	...	...	...	46
W. Kilby, Esq., ditto	...	...	...	...	2	34
E. H. Man, Esq., Andamans	...	...	...	1	3	210
C. Maries, Esq., Durbhunga Raj Garden	...	...	...	...	5	222
R. M. S. Mitchell, Esq., Garden Reach	...	...	...	...	...	24
Colonel Perreau, Calcutta	...	...	...	...	...	184
W. Pigott, Esq., ditto	...	...	...	...	...	7
G. McD. Peohe, Esq., Moulmein	...	...	...	1	1	208
Dr. J. G. Pilcher, Howrah	...	...	...	...	...	13
R. Pantling, Esq., Mungpoo	...	...	...	...	1	56
J. Parkes, Esq., Sikkim	...	...	...	...	3	526
M. Ridley, Esq., Luoknow	...	...	...	...	4	124
A. Simeon, Esq., Calcutta	...	...	...	...	...	1
Messrs Sohoene, Kilburn & Co., Calcutta	...	...	...	...	3	169
Colonel Talbot	...	...	...	...	1	3
Dr. G. Watt, Calcutta	...	...	...	...	...	16
Collected by the Superintendent in Darjeeling	...	...	...	...	2	170
Ditto Heir H. H. Kunstler, Penang	...	...	...	17	10	1,030
Ditto Badal Khan, Plant Collector, Chittagong	...	...	...	...	...	4
Babu P. C. Sein, Seebpore	...	...	...	...	...	8
Horee Mally, Nurseryman, Manioktollah	...	...	...	...	...	1,155
Essan ditto, ditto	...	...	...	...	...	20
Total				38	74	9,251

APPENDIX II.

Statement showing plants sent out from 1st April 1885 to 31st March 1886.

TO WHOM SENT.		Wardian cases.	Boxes.	Number of plants.
Government House Garden, Calcutta	...	.....	.....	275
His Imperial Majesty the Sultan of Turkey	...	20	.....	648
Royal Garden, Kew, London	...	5	.....	301
Do. Botanic Garden, Ceylon	...	1	1	99
Botanic Garden, Hong-Kong	...	3	.....	300
Ditto, George Town, Demerara	...	1	...	21
Ditto, Durban, Natal	...	4	.....	98
Ditto, Adelaide	...	.....	1	27
Ditto, Java	...	"1	1	92
Ditto, Jamaica	...	1	1	299
Ditto, Mauritius	...	1	.....	350
Ditto, Melbourne	...	.....	1	171
Ditto, Hull, England	...	.....	1	88
Government Botanic Garden, Saharanpur	...	.....	1	2
Compagnie Continentale d'Horticulture, Ghent	...	1	1	154
Lloyd Botanic Garden, Darjeeling <	...	.....	4	259
Belvedere Garden, Calcutta	...	.....	.....	20
Eden Garden, ditto	...	.....	.....	8
Zoological Garden, Calcutta	...	.....	.....	345
Agri-Horticultural Society's Garden...	...	.....	2	261
Horticultural Garden, Lucknow	...	.....	9	93
Government Agri-Horticultural Garden, Lahore...	...	.....	4	93
Public Garden, Ajmere	...	.....	13	261
York Exotic Nursery, Kew, Melbourne	...	.....	1	161
W. Bull, Esq., Chelsea, London	...	3	.....	196
M. Louis Van Houtte, Ghent	...	.....	1	82
J. P. Norrish, Esq., H. B. M's Consul, Port Said	...	1	.....	30
Lord Egerton, of Tatton, Cheshire	...	1	.....	2
M. T. A. Despezziez, Mauritius	...	1	.....	100
General Hyde, London	...	.....	1	49
Messrs. Palmer and Son, Queensland	...	1	.....	55
Deputy Conservator of Forests, Chittagong	...	.....	14	225
Assistant Superintendent of Forests, Penang	...	2	.....	144
Director of Agriculture, Assam	...	.....	3	44
Magistrate of Chittagong	...	.....	8	72
Ditto, Bankipore	...	.....	7	150
Cantonment Magistrate, Dum-Dum	...	.....	.....	75
Ditto, Barrackpore	...	.....	.....	200
Commissary of Ordnance, Calcutta	...	.....	.....	436
Secretary to the Pegu Municipality	...	.....	8	154
Ditto and Engineer, Akyab Municipality	...	.....	6	54
Suburban Municipality, Alipore	...	.....	.....	1,000
Executive Engineer, Calcutta Workshop Division	...	.....	.....	49
Ditto, Pegu	...	.....	16	300
High School, Dhubri	...	.....	4	49
Government High School, Rangoon	...	.....	1	K3
Ditto School, Taki	...	.....	.....	282
Military Orphanage, Khidderpore	...	.....	.....	150
Zenana Mission Church, Calcutta	...	.....	.....	50
Augarparah Orphanage and the Church of England Zenana Mission.	...	.....	.....	100
C. M. S. Mission House, Krisnaghur	...	.....	5	100
Barrackpore Cemetery	...	.....	.....	200
Prinoipal, Itavenshaw College, Cuttack	...	.....	9	91
General Hospital, Caloutta	...	.....	.....	18
Medical College Hospital, ditto	...	mm	.....	173
Mayo Native Hospital, ditto	...	"m	.....	30
Postmaster-General, ditto	...	J* I	2	64
Manager of Baron's Tea Estate, Jalpaiguri	...	[]" I	1	42
Sub-Deputy Opium Agent, Sarun	...	||	1	6
Engineer-in-Chief, East Indian Railway, Howrah	...	...	.....	4,207
Chief Engineer, East Indian Railway, Calcutta	...	...	.....	12
Ditto, Daoca, Mymensing and Chittagong State Railway.	...	...	8	192

APPENDIX U—continued.

• TO WHOM SEITT.			Wardian cases.	Boxes.	Number of plants.
Chief Engineer, Eastern Bengal State Railway, Calcutta	...	...	.....	.....	2,069
Assistant District Traffic Superintendent, East Indian Railway, Calcutta	...	...	.....	.....	24
Superintendent, Small Arms Ammunition Factory	...	...	.....	.....	471
Ditto, Gunpowder Factory, Ibhapur	...	...	.....	.....	140
Ditto of Jails, Burdwan	...	...	.....	1	50
Ditto ditto, Jossore	...	...	.....	11	220
Ditto ditto, Buxar Circle	...	...	.....	1	36
Ditto Central Jail, Midnapore	...	...	.....	6	170
District Superintendent of Police, Ramporehaut	...	...	.....	1	11
Ditto ditto, Rungpore	...	...	.....	1	20
Superintendent, Burrakar Iron Works	...	...	.....	4	90
Vice-Chairman of Port Commissioners, Calcutta	...	...	.....	.....	500
Collector of Monghyr	...	...	.....	7	110
Ditto of Hooghly	...	...	.....	.....	10
Superintendent, Customs Preventive Service, Sulkea	...	...	.....	.....	200
Sub-divisional Officer, Perozepur	...	...	.....	0	180
Superintendent, Durbhunga Raj Garden	...	...	.....	35	4,498
Civil Surgeon, Howrah	...	...	.....	.....	100
Deputy Surgeon-General, Nagpur	...	...	.....	1	30
Officiating Master of the Mint, Calcutta	...	...	.....	.....	30
E. T. Atkinson, Esq., Calcutta	...	...	.....	.....	201
A. A.pear, Esq., Calcutta	...	...	.....	.....	7
A. A. Apcar, Esq., Calcutta	...	...	.....	3	63
Mrs. S. T. A.pear, Garden Reach	...	...	.....	2	293
T. C. Anderson, Esq., Ceylon	...	...	..... *2	.....	85
Rev. O. Berg, Ramporehaut	...	...	.....	5	89
G. Bartlett, Esq., Calcutta	...	...	.....	1	74
F. B. Baker, Esq., Siliguri	...	...	##	5	100
T. G. Burnell, Esq., Chittagong	...	...	.....	5	100
J. Ballin, Esq., Seebpore	...	...	.....	.....	4
Colonel E. Berkely, Hangoon	...	...	.....	1	33
Lady Bradford, Rajputana	...	...	.....	2	29
Mrs. Boerresen, Ramporehaut	...	...	.....	3	78
Colonel T. Cadell, v.c., Andamans	...	...	..... 5	.....	284
Rev'd. A. Campbell, Jamtara	...	...	.....	4	100
Hon'ble H. A. Cockerell, Calcutta	...	...	.....	.....	7
J. Cleghorn, Esq., Akra	...	...	.....	.....	450
A. Dowling, Esq., Chittagong	...	...	.....	J9	420
W. Dover, Esq., Balasore	...	...	.....	1	25
G. H. P. Douglas, Esq., Feochugunj	...	...	.....	5	92
Mrs. Fletcher, Poona	...	...	.....	2	41
Fraser, Calcutta	...	...	.....	1	12
H. A. Gantzer, Esq., Howrah	...	...	.....	.....	1
J. U. Gilliland, Esq., Government Engineering College, Seebpore.	...	...	.....	.....	76
Mr. Grant, Balasore	...	...	.....	8	146
Captain Hughes, S. S. Panmure	...	...	..... i	.....	42
Bevd. C. S. Harington, Calcutta	...	...	.....	.....	50
L. C. Hooper, Esq.	...	...	.....	.....	4
W. H. Hardinge, Esq., Howrah	...	...	.....	.....	34
Miss. E. Harwood, Calcutta	...	...	.....	.....	118
S. J. Kilby, Esq.	...	...	.....	.....	4
L* Kane, Esq., Assam	...	...	.....	8	200
Bevd. W. Kitchin, Howrah	...	...	.....	.....	100
W. Kiefel, Giridi	...	...	.....	4	41
A. Langlois, Esq., Calcutta	...	...	.....	.....	2,000
A. Larmour, Esq., ditto	...	...	.....	.....	32
A. Lea, Esq., Dibrugarh	...	...	.....	1	20
Gordon Leith, Esq., Calcutta	...	...	.....	.....	1
Be*. A. L. Mitchell, Uowrah	...	...	.....	2	44
Burgess-Major Morphew, Cawnpore...	...	...	.....	2	43
S. H. Man, Esq., Andamans	...	...	..... i	.....	25
Colonel May, Gorhkhpoor	...	...	.....	3	60
Bevd. J. McDouuld, Jhum-Dum	...	...	.....	.....	150

PART TL—continued.

TO WHOM SSKT.			Wardian cases.	Boxes.	Number of plants.
Captain C. M. Muir, H. E. the Viceroy's Body-guard	...	...	...	3	68
Mrs. Morris, England	...	...	...	1	51
G. Norman, Esq., Calcutta	...	...	...	...	4
A. O. Hume, Esq., C.B., Simla	...	...	...	6	111
J. Owen, Esq., Alipore	...	...	...	...	305
Dr. J. G. Richer, Howrah	...	...	...	13	296
J. O. Pottinger, Esq., Ahmednugger	...	...	...	1	1
R. Pantling, Esq., Mungpoo	...	...	...	1	81
G. McD. Peohe, Esq., Moulmein	...	...	1	1	45
Colonel Perreau, Calcutta	...	...	...	...	38
A. Palmer, Esq., ditto	...	...	...	...	3
Sergeant Peck, Fort William	...	...	...	...	20
W. Pigott, Esq., Calcutta	...	...	...	...	10
Revd. A. Pastor	...	...	...	...	6
„ A. C. Rodrigues, Calcutta	...	...	...	...	50
Mrs. John Rose, Calcutta	...	...	...	...	4
Captain Stiffe, Calcutta	...	...	...	...	20
J. S. Slater, Government Engineering College, Seebpore	...	...	...	...	73
Captain Symons, S. S. <i>Pekin</i>	...	...	...	1	360
A. Simson, Esq., Calcutta	...	...	...	...	57
T. Steward, Esq., ditto	...	...	...	...	2
Rev. B. H. Soortiohini, Penang	...	...	2	...	66
W. M. Smith, Esq., Baidyanath	...	...	...	4	93
Mrs. L. Spenoer, Kajputana	...	...	...	1	45
Miss Stephen, Calcutta	...	...	...	...	13
„ M. W. Sugden, Nisohindeepur	...	...	...	5	100
J. Thomson, Epq., Melbourne	...	...	1	5	220
Colonel A. C. Toker, Alipore	...	...	...	...	658
C. F. Tonnerre, Esq., Ramporehaut	...	...	...	7	92
H. Wood, Esq., Calcutta	...	...	...	...	7
C. F. Warner, Esq., Calcutta	...	...	...	...	1
Colonel D. Ward, Simla	...	...	...	1	104
Miss Wheeler, Calcutta	...	...	...	...	10
A. Yule, Esq., Metiabrooj	...	...	...	...	6
H. D. Yule, Esq., Garden Reach	...	...	...	...	24
G. H. Tilly, Esq., Giridi	...	...	...	7	80
James Sutherland, Ksq., Calcutta	...	...	...	...	110
Messrs. Finlay, Muir & Co.	...	...	...	5	30
„ Gladstone, Wyllie & Co.	...	...	...	...	t maand of rhea stems. 6,000
„ Gillanders, Arbuthnot & Co....	...	...	...	3	15,036
„ Birkmyre Brothers, Hastings Mill, Serampore	...	...	...	...	and 4 mounds of rhea stems.
Manager of Paper Mill, Tittagurh	...	...	...	...	12
Sooruj Deo Narayan Sing, Balegurh	...	...	...	5	106
Sham Lall Lalla, Calcutta	...	...	...	21	600
Baboo P. C. Sein, Seebpore	...	...	...	...	11
„ D. N. Basu, Calcutta	...	...	...	...	8
„ Chutto Lall Misra, Burdwan	...	...	...	...	1
„ 8. P. Chattexjee, Calcutta	...	...	...	...	175
„ A. M. Mookerjee, Calcutta	...	...	...	...	1
„ B. G. Mullick, Calcutta	...	...	...	...	11
„ B. Ghose, Calcutta	...	...	...	...	1
„ B. C. Sein, Calcutta	...	...	...	...	200
„ B. N. Sing, Dum-Dum	...	...	...	...	8
„ B. B. P. Chowdhuri, Natudey	...	...	...	...	16
„ B. M. Chatterjee, Calcutta	...	...	...	...	4
„ D. Malleah, Raneegunj	...	...	...	8	178
„ D. C. Bose, Calcutta	...	...	...	...	214
„ G. O. Mookerjee Calcutta	...	...	...	...	18
„ G. M. Dutta, ditto	...	...	...	...	5

APPENDIX II—concluded.

TO WHOM SENT.				Wardian cases.	Boxes.	Number of plants.
Baboo	H. C. Chatterjee, Rangoon	...	...	...	...	8
"	H. M. Mookerjee, Seebpore	...	...	...	...	2
"	H. C. Boy, Shillong	...	...	...	...	43
"	J. G. Biswas, Calcutta	...	...	...	...	53
"	J. N. Roy, Burdwan	...	...	...	...	50
"	J. Banerjee, Serampore	...	...	...	...	8
"	K. Ii. Sing, Nuddea	...	...	...	...	22
"	K. P. Janab, Daro	...	...	...	...	1
"	K. P. B. Chowdhuri, Seebpore	...	...	...	...	48
"	N. C. Mookerjee, ditto	...	...	...	...	100
"	P. Maity, Nazirgunj	...	...	...	...	4
"	P. C. Roy, Caloutta	...	...	...	...	5
"	P. K. Chowdhuri, Horipal	...	...	...	...	3
"	R. M. Sett, Calcutta	...	...	...	...	2
"	R. C. R. Chowdhuri, Seebpore	...	...	...	...	2
"	R. Malleah, Howrah	...	...	...	...	16
"	R. M. Dass, Rungpore	...	...	...	...	11
"	S. C. Shaw, Horipal	...	...	...	...	3
"	T. N. Banerjee, Caloutta	...	...	...	...	20
"	T. D. Banerjee, ditto	...	...	...	...	5
Sadhu	Santra, Andool	...	...	...	...	1
Horee	Mally, Nurseryman, Manioktolli ^{ah}	...	...	...	...	14
Essan,	ditto ditto	...	...	...	...	22
M. N. Mehta,	Calcutta	...	...	...	...	23
Eazee	Golam Mohammed, Metiabrooj	...	...	...	...	8
Kazee	Mohammed Kunjee, Caloutta	...	...	...	...	1
Meerza	Mohamed Hossein, Metiabrooj	...	...	...	...	6
Shaik	Nowab Jan, Burdwan	...	...	...	...	1
Native Ladies of the Caloutta Medical College		...	...	...	...	24
Total				60	399	53,753

APPENDIX III.

Statement of seeds received from 1st April 1885 to 31st March 1886.

From whom received.	Number of parcels or packets.
Sir J. D. Hooker, K.C.S.I., C.B., F.R.B., &O., Director, Royal Garden, Kew, London ...	13
Dr. Regal, Imperial Garden, St. Petersburg, Russia ...	240
Botanic Garden, Jamaica ...	4
Ditto, Natal, Africa ...	£3
Ditto, Hong-Kong ...	4
Ditto, Demerara ...	1
Ditto, Tasmania ...	23
Ditto, Adelaide ...	51
Ditto, Saharanpur ...	35
Ditto, Darjeeling ...	51
Sir Ferdinand Von Muller, F.R.S., Melbourne, Australia ...	8
William Bull, Esq., P.L.S., Chelsea ...	1
Messrs. Haage and Schmidt, Erfurt ...	2
Secretary to the Agri-Horticultural Society of India ...	1
Officiating Secretary to the Chief Commissioner, Rangoon ...	1
Superintendent, Horticultural Garden, Lucknow ...	48
Ditto, Government Experimental Farm, Cawnpore ...	1
Ditto, Public Park, Baroda ...	1
Deputy Conservator of Forests, Cuddapah, Madras ...	14
Ditto, Kanara, Bombay ...	1
Ditto, Rangamati, Chittagong ...	1
District Forest Officer, Godavary District ...	1
C. Curtis, Esq., Forest Department, Penang ...	2
Herr H. H. Kunstler, Perak, Penang ...	1
E. H. Man, Esq., Port Blair, Andamans ...	108
J. Gammie, Esq., Mungpoo, Darjeeling ...	9
R. Pantling, Esq., Mungpoo, ditto ...	63
JL. Li. lister, Esq., Kalimpong, ditto ...	10
C. Maries, Esq., Superintendent of Gardens, Raj Durbhunga ...	1
W. M. Smith, Esq., Baidjanath ...	2
G. J. Nioholls, Esq., c.s., Ghazipore ...	2
Dr. George King ...	29
D. D. Cunningham, Calcutta ...	2
Colonel Perreau, ditto ...	1
A. W. Solomon, Esq., ditto ...	1
Messrs. Stanley, Price & Co., ditto ...	15
Begg, Junlop & Company, Calcutta ...	2
A* Aitkin Higgins, Esq., Calcutta ...	25
Badal Khan, Plant Collector ...	82
Babu Bisumbhur Ghosh, Seebpore ...	33
Rai Prossonno Kumar Bannerjee, Bahadur, Calcutta ...	1
Total ...	914

APPENDIX IV.

Statement showing seeds distributed from the Royal Botanic Garden during the year 1885-86.

To whom sent.	Number of parcels or packets.
Sir J. D. Hooker, K.C.S.I., C.B., F.R.9., &O., Director, Royal Garden, Kew, London ...	178
Dr. Regel, Imperial Garden, St. Petersburg, Russia ...	69
Botanic Garden, Edinburgh ...	68
Ditto, Cambridge, England ...	44
Ditto, Christiana ...	30
Ditto, Hobart Town, Tasmania ...	6
Ditto, Brisbane, Queensland... ..	2
Ditto, "Utrecht, Holland ...	29
Ditto, Leiden, ditto ...	18
Ditto, Buitenzorg, Java ...	4
Ditto, Hong-Kong, China ...	4
Ditto, Gordon Town, Jamaica ...	3
Ditto, Singapore ...	2
Ditto; Peradeniya, Ceylon ...	5
Ditto, Ghinsh Khind, Poona ...	301
Ditto, Saharanpur ...	31
Ditto, Darjeeling ...	231
Director, Compagnie Continental d'Horticulture, Ghent ...	17
M. Max Leiohtlin, Baden-Baden ...	38
Seotretary to the Acclimatization Soceity, Brisbane, Queensland ...	6
Ditto Agri-Horticultural Society, Madras ...	5
Ditto ditto of India, Calcutta ...	6
Superintendent, Horticultural Garden, Lucknow ...	23
William Bull, Esq., F.L.S., Chelsa ...	14
Messrs. James Veitch and Sons, Chelsea ...	9
„ Haage and Schmidt, Erfurt ... *	...
„ G. Brunning and Son, Melbourne ...	1
Sir Ferdinand Yon Muller, F.R.S., University, Melbourne ...	2
Sir A. J. Arbuthnot, K.C.S.I., Newbury, England ...	79
W. G. Head, Esq., Horticultural Department, Crystal Palace, London ...	2
Dr. M. Fqster, M.D., F.R.S., &C, Cambridge, England ...	12
„ Maxwell Masters, M.D., F.R.S., London ...	12
„ R. Baumgarten Djocjacarta, Java ...	1
George F. Wilson, Esq., Weybridge Heath, London ...	50
Colonel Trevor Clarke, South Kensington, London ...	72
Dr. J. B. Balfour, F.R.S., Professor of Botany, Oxford ...	21
Captain W. J. Elwes, Cirenoester ...	36
„ Symons, 8. S. <i>Pekin</i> ...	408
Miss Fletcher, St. Thomas' Home ...	80
Rev'd. A. Seacome, Breoonshire ...	80
H. Franklin, Esq., St. Hilary, Cambridge ...	12
William Brookbank, Esq., F.L.S., Manchester ...	0
George Well Campbell, Esq., Lockerbie ...	4
A. Forbes, Esq., Aberdeen ...	10
J. Gammie, Esq., ditto ...	13
David Pram, Esq., Fettercaim, Laurenoebirk ...	7
H. C. Levinge, Esq., Knock Drin Castle, Ireland ...	25
Hon'ble J. Brossisto, M.P., Melbourne ...	2
M. S. G. Despeissiez, Mauritius ...	5
J. A. Campbell, Esq., Ceylon ...	5
Deputy Commissioner, Arrakan Till Tracts ...	1
Ditto, Sultanpur ...	3
Ditto, Ellichpur ...	1
Conservator of Forests, Rangoon ...	14
Ditto, N. Circle, Madras ...	2
Ditto, Bengal ...	1
Ditto, Assam ...	1
Deputy Conservator of Forests, Chittagong ...	1
Ditto ditto, Ranchee ...	10
Ditto ditto, Buxa ...	1
Ditto ditto, Teesta Division ...	1
Assistant Conservator of Forests, Ajmere ...	1
Ditto ditto, KurseoDg ...	2
Officiating Conservator of Forests, Pegu Circle, Rangoon ...	1
E. H. Man, Esq., Andamans ...	1
	1

APPENDIX IV—*contd.*

To whom sent.				Number of parcels or packets.
C. Maries, Esq., Durbhunga	...	...	...	24
His Excellency The Right Hon'ble M. E. Grant	...	...	Duff, Madras	12
Surgeon-General Bidie, c.s.i., Madras	...	...	...	18
A. O. Hume, Esq., C.B., Simla	...	...	...	112
M. R. Weld, Esq., Kistna, Madras	...	...	...	29
J. Gammie, Esq., Mungpoo	...	...	...	1
R. Pantling, Esq., ditto	...	...	...	5
A. F. Dowling, Esq., Kurnafuli	...	...	...	1
Manager, Oodaleah Tea Estate, Chittagong	...	...	...	1
Ditto, New Terai Tea Association, Siliguri	...	...	...	1
Ditto, Gangaldai Factory, Bhagalpore	...	...	...	1
Ditto, Soolahera Estate, Mysore	...	...	...	1
Ditto, Harsingpore Indigo Concern, Tirhoot	...	...	...	1
A. M. G. Smith, Esq., Nuddea	...	...	...	1
Edward Hall, Esq., Mysore	...	...	...	1
Executive Engineer, Public Works Department, Chittagong	...	...	...	1
District Engineer, Rungpore	...	...	...	2
Ditto, Mymensingh	...	...	...	1
Engineer-in-Chief, Dacca-Mymensingh State Railway, Dacca	...	...	...	6
Assistant Engineer, Public Works Department, Kistna	...	...	...	92
Secretary, Eurasian and Anglo-Indian Association, Madras	...	...	...	7
Ditto and Engineer, Akyab Municipality, Akyab	...	...	...	2
Ditto to the Calcutta Exhibition, Melbourne	...	...	...	48
Honorary Secretary, Moradabad Club	...	...	...	1
Superintendent, Cantonment Garden, Rangoon	...	...	...	1
Sub-divisional Officer, Alipur Duar	...	...	...	1
H. Inglis, Esq., Akyab	...	...	...	6
A. East, Esq., Mercaxa	...	...	...	1
Colonel Timler, Russian Army	...	...	...	4
Consul for Portugal in British India, Bombay	...	...	...	1
Dr. T. E. B. Brown, M.R., Medical School, Lahore	...	...	...	20
Thomas Wardle, Esq., Leek, Staffordshire	...	...	...	45
J. Collet, Esq., Srinagar	...	...	...	1
The Commissioner of Bhagulpoie	...	...	...	1
Y. B. Lewis, Esq., Purneah	...	...	...	1
J. Jarbo, Esq., Rungpore	...	...	...	173
G. A. Yallenti, Esq., Ranchee	...	...	...	1
Director of Agriculture, Assam	...	...	...	4
R. B. Moybe, Esq., Kohima	...	...	...	201
T. Norman, Esq., Mozufferpore	...	...	...	1
James Anderson, Esq., Berhampore	...	...	...	1
P. H. Brown, Esq., Coonada	...	...	...	2
G. S. Tilly, Esq., Parasnath	...	...	...	22
H. Wylly, Esq., Mourbhanj, Orissa	...	...	...	1
C. Prentis, Esq., M.D., Civil Surgeon, Gorakhpore	...	...	...	1
Thomas Barnard, Esq., Buxar	...	...	...	1
J. D. Beglar, Esq., Chinsurah	...	...	...	1
Colonel J. Miller, Commanding Bhopal Battalion, Sehore	...	...	...	38
„ J. Upperton, United Service Club, Calcutta	...	...	...	27
„ Talbot, Political Agent, Bikaner	...	...	...	2
Messrs. Jardine, Skinner and Company, Calcutta	...	...	...	1
„ Stanley, Price and Company, Calcutta	...	...	...	98
Messrs. Schoene, Xilburn and Company, Calcutta	...	...	...	1
Bengal Store Company, Calcutta	...	...	...	1
L. P. D. Broughton Esq., ditto	...	...	...	1
Major J. Colquhoun, R.A., Dum-Dum	...	...	...	2
J. A. Crawford, Esq., Calcutta	...	...	...	1
M. Harmand, Consul-General for France, Calcutta	...	...	...	12
M. leChivalier J. Grallian, Calcutta	...	...	...	12
O. C. Khambatta, Esq., Canning Town	...	...	...	1
P. Play fair, Esq., Calcutta	...	...	...	2
L. A. Smith, Esq., ditto	...	...	...	2
H. D. Yule, Esq., ditto	...	...	...	1
Halfdan Bahr, Esq., Curator, Royal Botanic Garden	...	...	...	61
Pundit Jwala Duttee, Lahore	...	...	...	1
Badun Nuskar, thana Makooah	...	...	...	1
Bazit Kazie, ditto	...	...	...	1
Babu Bissumbhur Ghosh	...	...	...	1
„ Brojendra Coomar Sein, Paikpara	...	...	...	1

APPENDIX TV—concluded.

To whom sent.			Number of percela or packets.
Baboo Haran Chandra Chatterjee, Overseer, Pegu Division	...	...	12
„ Hari Mohun Moitra, Maldah	...	...	1
Hurry, Nurseryman, Calcutta	...	...	1
Babu Khettra Mohun Dutta, Calcutta	...	...	1
„ Poorna Chunder Roy Chowdhury, Mymensing	...	...	3
Rai Frosunno Kumar Banerjee, Bahadur, Calcutta	...	...	12
Babu Frosono Coomar Sein, Seebpore	...	...	1
„ Frotap Narain Sing, Bankoorah	...	...	1
„ Protap Chandra Ghosh, Calcutta	...	...	1
„ Tacoor Dass Banerjee, ditto	...	...	1
Total			<u>3,292</u>

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN FOR THE
YEAR 1886-87.

No. 15G, dated Calcutta, the 21st May 1887.

From—SURGEON-MAJOR G. KING, M.B., L.L.D., & C, Superintendent, Royal Botanic Garden, Calcutta,

To—The Secretary to the Government of Bengal, Financial Department.

I HAVE the honour herewith to submit the Hundredth Annual Report of the Royal Botanic Garden.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN FOR THE YEAR 1886-87.

IT may not be inappropriate to begin the hundredth annual report of the garden by giving a brief account of its history, which is, to a very great extent, a history of Indian Botany.

1. The suggestion to form a Botanic Garden here was first made to the Government in Calcutta in June 1786, by Colonel Robert Kyd, then Superintendent of the Hon'ble Company's Dockyard at Kidderpore. The proposal was favourably entertained by the Governor-General, and its adoption was recommended to the Supreme Board in London during the same month, practical effect being given to it during the following year by the selection, as a site, of a large piece of land immediately below Colonel Kyd's private garden at Shalimar. This piece of land, besides the Botanic Garden as it is now limited, included about fifty acres which form part of the grounds of the present Engineering College. Colonel Kyd was himself an ardent horticulturist, and he had brought together in his private garden at Shalimar a large collection of exotic plants, chiefly from the Straits. He was therefore very appropriately appointed the first Superintendent of the Botanic Garden which had been founded at his suggestion. Colonel Kyd continued to perform the duties of Superintendent until his death in 1793. On Colonel Kyd's death, Government decided to put the garden under the charge of a special officer who should have no other duty. Dr. William Roxburgh, the Company's Botanist in Madras, was therefore transferred from Madras Presidency, and was installed at Seebpore in November 1793. No better selection than that of Dr. Roxburgh could have been made. Dr. Roxburgh, for many years prior to his transfer, had been engaged in studying the then little-known Flora of the Northern Circars in the Madras Presidency. He was a most ardent and enthusiastic botanist, and a good gardener. Dr. Roxburgh continued to be Superintendent until 1814* when he was obliged to proceed to the Cape on account of his health. From the Cape he went on to St. Helena, and from thence to England, where he died during the following year. Dr. Roxburgh was the first botanist who attempted to draw up a systematic account of the plants of India. During his busy life in this country he prepared a *Flora Indica* which contained systematic descriptions of all the indigenous plants known to him, as well as of many exotics then in cultivation in the neighbourhood of Calcutta. The manuscript of this work he took with him when he left India, intending to publish it during his residence in England. His death prevented the execution of this plan; and, with the exception of the first volume, which was printed with some additions and interpolations by Drs. Wallich and Carey in 1820, the book remained unpublished until 1832. In the latter year it was printed, exactly as the author had left it, by the piety of his sons, Captains James and Bruce Roxburgh, neither of whom was a botanist. This book is the basis of all subsequent Indian botanical works. It is an admirable production: the descriptions are accurate and graphic, and its authorship justly entitles him to his title of the Father of Indian Botany. Until the year 1872, when the publication of the *Flora of British India* was begun by the distinguished botanist Sir Joseph Hooker, Roxburgh's was the only single book through which a knowledge of Indian plants could be acquired. A second edition of this excellent manual was issued by Mr. C. B. Clarke in 1874 at a merely

nominal price, Mr. Calarke's desire being to put the book within the reach of the poorest student. Besides the *Flora Indica*, Roxburgh published, at the expense of the Honourable Company, in three large folio volumes, his *Plantæ Coromandelianæ*, being descriptions with figures of three hundred of the most striking plants of the Coromandel Coast. Dr. Roxburgh was immediately succeeded, in the Superintendentship of the Garden by Dr. Francis Buchanan (afterwards Hamilton) who at the time was on special duty in connection with an extended enquiry into the agriculture of India and in the collection of materials for a Gazetteer. Dr. Hamilton, who was an accomplished botanist and zoologist, collected a vast mass of material, part of which was published in his own name, but the bulk of which, after many years' suppression, was published under the title of Montgomery Martin's History, Topography and Statistics of Eastern India. Dr. Buchanan-Hamilton held charge of the garden for only a short time, and he was succeeded in 1817 by Dr—Mathaniel Wallich, lately Surgeon to the Danish Settlement at Serampore. Dr. Wallich was an able and most energetic botanist; and, during the earlier part of his term of office, he organised collecting expeditions into the remote and then little known regions of Kumaon, Nepal, Silhet, Tenasserim, Penang, and Singapore. Dr. Wallich in fact undertook a botanical survey of a large part of the Indian Empire. The materials (in the shape of dried specimens of plants) thus accumulated were taken by Dr. Wallich to London, and, after being named there by himself and by other botanists, they were distributed in numbered collections to the leading botanical institutions in Europe. In this great distribution, Dr. Wallich included the collections of several other botanists which had been made over to him for the purpose. The liberality with which these specimens was given away was so extreme that, in the garden report for the year 1843, we find Dr. Griffith (who had been appointed to officiate for Dr. Wallich during his absence in England) complaining that the herbarium had been completely denuded of every specimen collected during the first fifty years of the existence of the garden. Besides distributing these enormous collections, Dr. Wallich was enabled, through the munificence of the Honourable Company, to publish, under the title *Plantæ Asiaticæ Bariores*, three superb volumes illustrated by coloured figures of a high degree of excellence. Dr. Wallich retired in 1844 and died in 1854. During the lengthened absences of Dr. Wallich in Europe, his place at the garden was filled by Dr. Griffith, whose premature death deprived Botanical Science of one of its ablest and most industrious votaries. Dr. Griffith's extensive notes and numerous drawings were, after his death, published by Government in nine volumes. Dr. Wallich was succeeded by Dr. Hugh Falconer. Dr. Falconer was a Palaeontologist, well-known by his researches on the Sivalik Fossil Mammalia. In 1855 he left the country on account of ill-health, and was succeeded as Superintendent by Dr. Thunias Thomson, a traveller and botanist of much ability, the coadjutor of Sir Joseph Hooker in the collection and distribution of an extensive and well known herbarium of East Indian plants, and the joint author of the first volume of a new *Flora Indica*. Dr. Thomson retired in 1861, and was succeeded by Dr. Thomas Anderson, whose untimely death in 1870 was caused by disease contracted during his efforts for the introduction of the quinine-yielding Cinchona into the Sikkim Himalaya. For the two years subsequent to Dr. Anderson's departure from India, Mr. Clarke acted as Superintendent, and during his incumbency he began the series of Botanical publications which has earned for him so high a scientific reputation.

2. From the first foundation of the garden, it was understood that it was to be made a source of botanical information for the possessions of the Company, and at the same time a centre to which exotic plants of economic interest could be imported for experimental cultivation, and from which, in turn, they could be issued for distribution in the Company's possessions. It was also intended to assist in introducing indigenous Indian products to new markets. It was intended that it should not only be a botanical, but also a horticultural and agricultural garden. The preceding paragraph shows how the botanical work laid out for the garden has been accomplished. But the economic side has by no means been neglected. At first, great hopes were entertained that the spices which rendered the trade of the Company with the Moluccas and other of the Malayan Islands so valuable, might be cultivated in Bengal.

The earliest efforts of Colonel Kyd were therefore directed to the introduction of the trees which yield nutmegs, cloves and cinnamon, and of the pepper vines. It was, however, speedily proved that the climate of Northern India is quite unsuited to these equatorial species. The equatorial fruits, such as mangosteen, l'ngs&t, dukko and bread-fruit, were also tried with a similar result; and so were the temperate fruits of Europe. In fact, no small part of the benefits conferred on the country by the garden in its early days was the demonstration by practical experiment that certain natural products, many of them of a most desirable kind, cannot be grown in Bengal; much money and bootless effort being thus saved to the country. The introduction of exotic timber trees also received early attention; and in the garden there still remain a few of the original mahogany trees introduced in these early years. The introduction of tea was one of the items put down in Colonel Kyd's original programme; and in the final establishment of what has now become one of the most important industries in Northern India, the garden bore a most important part. Potato growing was introduced through its agency, and the cultivation of the quinine-yielding Cinchonas of the Andes was initiated and carried to a successful issue under the direction of Superintendents of this garden. In the improvement of Indian cotton, and in the introduction both of that and of jute to the markets of Europe, the garden authorities worked cordially hand in hand with the Agri-Horticultural Society of India, with what success it is unnecessary to point out. By the introduction of some of the best kinds of sugarcane from the West Indies, and the dissemination of these to all parts of the country, a considerable improvement was effected both on the quality and quantity of the sugar crop of the country. In this matter also the Agri-Horticultural Society worked hand in hand with the garden authorities. Very soon after the establishment of the Society just mentioned, a considerable piece of land in the garden was made over to it rent-free, and on this land the Society conducted the greater part of its operations for forty years. In fact, it was not until the year 1872 that the Society's garden was transferred to its present site in Alipore. It is unnecessary to discuss in detail the numerous experiments in the cultivation of economic plants which have been conducted in the garden since its beginning. A few of the products tried may simply be mentioned. Chief among these are flax, hemp, tobacco, henbane, vanilla, coffee (Arabian and Liberian), cocoa, ipecacuanha, aloes, sarsaparilla, jalap, India-rubber, cardamoms, tapioca and coca. As regards horticulture, it may suffice to say that a large proportion of the kinds of exotic plants now found in private gardens in India has been introduced to the country through the agency of this garden, and that the improved methods of cultivation which now obtain were to a great extent initiated here.

3. In 1820 about fifty acres of land belonging to the garden were made over by Government to the Society for the Propagation of Christian Knowledge. And on this land the Society founded the institution so long known as Bishop's College, but since 1880 (owing to its retransfer to Government) as the Government Engineering College. In the year 1864 the garden was devastated by a cyclonic storm of extraordinary violence, "which either uprooted or broke to pieces the majority of the trees in it, and, by blowing down all the plant-houses, hopelessly crushed their contents. The few trees which escaped on that occasion were sadly reduced in number by a second cyclone which passed over the garden in 1867; and, at the present time, almost the only trees dating from before 1867 are the great banyan and a smaller tree of the same sort, some peepuls and country almonds, about twenty mahogany trees, and some palms. It is almost a pity that the occasion of its destruction by these cyclones was not taken to remove the garden to a site on the Calcutta side of the Hooghly. For, although there are certain advantages in the garden being so remote from the town, there can be little doubt that the balance is in favour of a site more easily accessible to the residents of Calcutta. The destruction of all shade, which resulted from the removal of the trees, allowed the inveterate weed known popularly as ooloo grass and botanically as *Impemta cylindrica* to take possession of the whole of the ground not occupied by roads or flower borders; so that when I took charge of the garden in 1871 it presented rather a sorry appearance. The liberality of the local Government, under whose control it soon thereafter passed, has made it possible for me to lay out the garden entirely anew.

The whole of its area has since that date been treated for landscape effects, sheets of ornamental water having been formed, and, with the earth so obtained, undulations having been thrown up. New roads and footpaths have also been made; a building for the Herbarium and three handsome conservatories for the more delicate kinds of living plants have been erected; nursery buildings have been put up; and the garden staff have been furnished with comfortable houses.

4. Botanically the most important feature in the garden is its Herbarium, or collection of dried plants. As has already been explained, all the collections prior to Dr. Wallich's visit to England in 1828 were distributed by him to scientific institutions abroad. The commencement of the present collection dates, therefore, from his return to India in 1832. It consists of plants contributed by almost every worker at Botany in India since that date, and of considerable contributions from Botanists in Europe. It is first and foremost an Indian Herbarium, but the plants of South-Eastern Asia, of Japan, of Persia and of Asia Minor are fairly well represented. Those of Europe also excellently represented; but in African and American plants the collection is comparatively poor. Constant communication and interchange of specimens have been kept up for the last fifty years with the great national collection at Kew; and to the distinguished Directors of that institution, Sir William Hooker and his son and successor Sir Joseph, the Calcutta Herbarium is indebted for invaluable contributions. Interchanges have also been kept up with other European Botanic Institutions, such as the Herbarium of the British Museum, of the *Jardin des Plantes*, Paris, the Imperial Gardens at St. Petersburg and Berlin, the Royal Botanic Gardens at Buitenzorg in Java, at Peradeniya in Ceylon, and at Saharanpore; and with many other institutions. Amongst the private contributors in past times from whom the Herbarium has received the most valuable collections must be mentioned Vicary, Edgeworth, Griffith, Wight, Simons, Law, Gibson, Stocks, Dulzell, Kurz, Miquel, and Maingay. The most important contributions received during recent years have been duly mentioned in my annual reports.

5. The year which ended on 31st March last presented little of novelty. No new works were undertaken in the garden, and the time of the staff was occupied in the ordinary routine of cultivation. The show of orchids was unusually fine, and the general condition of the plants, both in the conservatories and out of doors, was satisfactory.

6. The collection of dried plants received several valuable additions during the year. Chief amongst these was a set of the plants collected by Dr. Aitchison during the Afghan Boundary Commission. Dr. Aitchison's collections were taken by himself direct to Kew, whence, after having been named and numbered, a set was issued to Calcutta. From Kew were also received a named set of plants collected by Dr. Giles during the Gilgit Expedition; and a quantity of plants collected some years ago by Dr. G. Watt while he was on duty with the Commission appointed to settle the boundary between Munipur and Burmah. From Kew were also received a quantity of interesting specimens made by various collectors in the Malayan Peninsula, in Singapore and in Penang. For all these contributions from Kew we are indebted to the good offices of Mr. Thiselton Dyer, its present distinguished Director. Dr. Regel, of the Imperial Garden, St. Petersburg, presented a large number of most interesting plants from the Russian possessions in Central Asia. Three excellent named collections from Natal were presented by Mr. Medley Wood of the Botanic Garden, Durban. From Mexico, Mr. Pringle sent four hundred named species; and from New Guinea Mr. H. O. Forbes forwarded a large box filled with dried plants. Of contributions received from within the limits of India, I have to acknowledge—from Sikkim a quantity of plants from Mr. G. Gammie, as also a collection made by a Bhotea employed by Mr. Pantling in the Lachen valley; from the Ivhasia Hills many fine things, chiefly trees, from Mr. Gustav Mann; from the Naga Hills a fine collection made during his short residence there by Dr. D. Prain, now Curator of the Herbarium; from the North-Western Himalaya some interesting plants sent Mr. J. F. Duthie, of Seharampore, and by Colonel H. Collett, C.B.; from Manbhoom a collection made by Reverend J. Campbell; and from Southern India a few most interesting plants from Mr. J. S. Gamble, Conservator of Forests.

7. During the month of November last the Herbarium was visited, for the purpose of study, by the Reverend Father Scortechini, the Government Botanist of Perak, who had been deputed by Sir H. Low, the British Administrator of that State, to proceed to Calcutta in order to name and arrange his collections of Perak plants. It was Father Scortechini's intention to have remained here for three or four months; but unfortunately he died shortly after his arrival. During the year there was issued from the press the first part of a monograph of Indo-Malayan species of *tt'cus*, in which I have been engaged for some time.

8. I have to acknowledge, with thanks, the assistance freely afforded whenever asked, by the Indian Assistant in the Kew Herbarium, Mr. W. Botting Hemsley. Mr. Hemsley, with the permission of the Director, Mr. Thiselton Dyer, is always ready to settle any knotty point in nomenclature, or to check any doubtful identification—a kind of work that can only be done with accuracy in a perfectly equipped Herbarium like that of Kew.

9. The interchange and distribution of plants and seeds has gone on actively during the year. Of plants, 8,064 were received against 46,104 given out. Of seeds, 903 packets were received and 2,534 distributed. The names of all donors and recipients will be found in the appendices to this report.

10. The Lloyd Botanic Garden at Darjeeling has during the year been under the charge of Mr. W. Kennedy. And the Municipality having agreed to continue the vegetable garden which lies wedged in between the Botanic Garden and the grounds of the Sanitarium, that garden also has been under Mr. Kennedy's care. At one time the Municipality threatened to convert the vegetable garden into bazar; at another they resolved to turn it into a washing-place for the dhobies of the station. Its maintenance as a sightly spot is a matter which concerns not only the Municipality, but the visitors who frequent Darjeeling and the patients in the Sanitarium. It is well, therefore, that both these proposals have, for a time at least, been shelved. I regret to have to report that the acclimatised English potatoes turned out badly, the produce having been tasteless and waxy. This was also the experience of private growers.

11. The budget allotments of both the Calcutta and Darjeeling gardens were spent in full. At Calcutta Rs. 1,373 were realised by the sale of surplus plants, and at Darjeeling, from the sale of garden produce of sorts, Rs. 1,180 were collected as against Rs. 741 last year.

12. In May last Mr. L. J. K. Brace, Curator of the Herbarium, retired from the service of Government, and Surgeon D. Prain, of the Indian Medical Service, was appointed in his stead. Owing, however, to the exigencies of military service, Dr. Prain was not able to join his appointment until 24th January last; and during the interval the Herbarium work devolved upon myself. Dr. Prain had on a previous occasion officiated for Mr. Brace, and had shown himself to be a highly competent man. Mr. W. McHardy, from the Royal Garden, Kew, having been appointed to the post of Assistant Curator, vacated by promotion of Mr. H. Bahr, joined on 15th June 1886. He has worked well. Messrs. Bahr and Kennedy have also conducted their respective duties in a satisfactory manner.

13. The usual returns, four in number, are appended.

APPENDIX I.

Statement showing plants received from 1st April 1883 to 31st March 1887.

FROM WHOM RECEIVED.	Wardian cases.	Boxes.	Number of plants.
Royal Garden, Kew, London	2	.....	60
Botanic Garden, Durban, Natal	1	.....1	28
Ditto, Hong-Kong	3	.....	46
Lloyd Botanic Garden, Darjeeling	.....	.....6	246
Government Agri-Horticultural Garden, Lahore	.....	.....4	77
Agri-Horticultural Society, Calcutta	.....	.....	158
Horticultural Garden, Lucknow	.....	.....1	1
Zoological Garden, Calcutta	.....	.....	36
Eden Garden, Calcutta	.....	.....	24
W. Bull, Esq., London	2	.....	71
W. G. Head, Esq., Crystal Palace, London	1	.....	66
Messrs. James Veitch and Sons, Chelsea	1	.....	43
J. Gammie, Esq., Mungpoo	.....	.....7	417
Chemical Examiner, Calcutta	.....	.....1	1
T. C. Anderson, Esq., Ceylon	.....1	.....	144
S. T. Apoor, Esq., Garden Reach	.....	.....	3
E. T. Atkinson, Esq., Calcutta	.....	.....	2
GK W. Bartlett, Esq., ditto	.....	.....	429
H. G. Batten, Esq., Sandoway, Burmah	.....	.....	105
L. J. K. Brace, Esq.	.....	.....	1
C. B. Clarke, Esq.	.....	.....	52
Reverend J. Campbell, Pokhuriah	.....	.....	44
C. Creagh, Esq., Assistant Resident, Laroot	6	.....	130
Director of Agriculture, Assam	.....	.....1	20
Deputy Conservator of Forests, Chittagong	.....	.....	19
J. H. Gilbert, Esq., Rangoon	.....	.....4	244
J. S. Gamble, Esq., Madras	.....	.....	34
A. O. Hume, Esq., C.B., Simla	.....	.....	24
Hiss. E. Harwood, Calcutta	.....	.....	6
W. Kilby, Esq., Rungpore	.....	.....	4
S. J. Kilby, Esq., Calcutta	.....	.....3	38
G. Mann, Esq., Shillong	.....	.....1	1,48
E. H. Man, Esq., Andamans	.....2	.....4	259
R. W. S. Mitchell, Esq., Garden Reach	.....	.....	2
Oolone 1 Perreau, Calcutta	.....	.....1	229
G. MoD. Peche, Esq., Moulmein	.....2	.....3	338
J. Parkes, Esq., Sikkim	.....	.....12	396
DP. J. G. Pilcher, Howrah	.....	.....	4
Dr. T. J. Rowell, Singapore	.....	.....	1
W. Stalkartt, Esq., Ghoossery	.....	.....	133
Captain Sanders, 8. 8. Rajputana	.....	.....2	4
Collected by the Superintendent in Darjeeling	.....	.....	38
Ditto Dr. Prain, Kohima	.....	.....1	11
Ditto Herr H. H. Kunstler, Penang	.....13	.....1	618
Ditto Badul Khan, Plant Collector, Chittagong	.....	.....7	436
Babu P. C. Sein, Seebpore	.....	.....	67
» 8. P. Chatterjee, Calcutta	.....	.....	28
Haree Malee, Nurseryman, Manioktollah	.....	.....	912
Shaik Jomeeruddy Malee, Thanamakua	.....	.....	2
W. A. Kennedy, Esq., Darjeeling	.....	.....	92
unknown donor	.....	.....1	12
Ditto ditto	.....1	.....2	51
Total	85	64	8,064

APPENDIX II.

Statement showing plants sent out from 1st April 1886 to 31st March 1887.

TO WHOM SENT.			Wardian cases.	Boxes.	Number of plants.
Her Excellency Lady Dufferin, Calcutta	...	...	.....	.....	12
Government House Garden, Calcutta	...	...	.....	.....	108
Royal Garden, Eew, London	...	...	5	2	563
Botanio Garden, Hong-Kong	...	...	3	1	278
Ditto, George Town, Demerara	...	...	5	.....	208
Ditto, Singapore	...	...	4	.....	280
Ditto, Ootacamund	...	...	.....	1	58
Ditto, Saharanpore	...	...	.....	4	228
Ditto, Darjeeling	...	...	.....	3	84
Jardin des Plantes, Paris	...	...	.....	.....	32
Horticultural Garden, Nagpur	...	...	.....	.....	J8
Government Garden, Laroot	...	...	2	.....	58
Eden Garden, Calcutta	...	...	.....	.....	38
Zoological Garden, Calcutta	...	...	.....	.....	159
Public Garden, Pachmarhi	...	...	.....	1	12
Government Agri-Horticultural Garden, Lahore	...	...	.....	30	595
Agri-Horticultural Society's Garden, Calcutta	...	...	.....	1	65
Indian Museum, Calcutta	...	...	.....	.....	29
William Bull, Esq., F.L.S., Chelsea, London	...	...	1	.....	24
Sir Charles Elliot, K.C.S.I.	...	...	.....	1	69
Lord Crewe of Crewe	...	...	.....	1	81
Lady Rosebery	...	...	1	.....	42
W. G. Head, Esq., Crystal Palace, London	...	...	1	.....	44
Conservator of Forests, Assam	...	...	.....	2	101
Deputy Conservator of Forests, Assam	...	...	.....	1	20
Ditto, Orissa Division	...	...	.....	9	1,000
Assistant Superintendent of Forests, Penang	...	...	1	.....	24
Commissioner of Patu a	...	...	« » »	12	300
Deputy Commissioner, Dhubri	...	...	.....	12	240
Ditto, Gurdaspur	...	...	.....	2	18
Port Commissioners, Calcutta	...	...	.....	.....	824
Collector of Cuttack	...	...	.....	1	12
Cantonment Magistrate, Baraset	...	...	.....	.....	135
Officiating Ditto, Dum-Dum	...	...	.....	.....	120
Chairman, District Road Committee, Sarun	...	...	.....	3	150
Ditto, Serampore Municipality	...	...	.....	.....	100
Suburban Municipality, Alipore	...	...	.....	28	2,000
Secretary and Engineer, Akyab Municipality	...	...	.....	4	37
Chief Engineer, East Indian Railway, Howrah	...	...	.....	2	1,272
Executive Engineer, Arrah Division	...	...	.....	18	360
Ditto, 2nd Calcutta Division	...	...	.....	.....	6
Ditto, Calcutta	...	...	.....	.....	150
District ditto, Motihari, Tirhoot	...	...	.....	32	2,000
Do. ditto, East Indian Railway, Howrah	...	...	.....	.....	1,550
Do. ditto, Pubna	...	...	.....	2	50
Do. ditto, Shahabad	...	...	.....	3	200
Do. ditto, Behar	...	...	.....	6	500
Do. ditto, Futwa	...	...	.....	7	500
Do. ditto, Behta, Dinagepux	...	...	.....	11	1,000
Sub-Overseer, Mokanieh and Barrh	...	...	.....	10	1,000
Sub-Divisional Officer, Alipore, Western Duars	...	...	.....	8	100
Superintendent, Gunpowder Factory, Cossipore	...	...	.....	.....	200
Ditto, ditto, Ishapur	...	...	.....	.....	620
Ditto, Brick Factory, Akra	...	...	.....	.....	150
Ditto, Amwory Factory, Kajra	...	...	.....	3	200
Ditto, Kanti Faotory, Tirhoot	...	...	.....	3	170
Ditto, Jail, Midnapore	...	...	.....	.....	100
Ditto, do., Burrisal	...	...	.....	2	50
Ditto, do., Alipore	...	...	.....	.....	155
Ditto, Presidency Jail, Calcutta	...	...	.....	.....	641
Ditto, Durbhunga Raj Garden	...	...	.....	7	1,308
Ditto, Public Works Department, Tonk Estate	...	...	.....	5	110
Officiating Master of the Mint, Calcutta	...	...	.....	.....	1,356

APPENDIX II—continued.

TO WHOM SENT.	Wardian cases.	Boxes.	Number of plants.
Transport Officer, Calcutta	500
Port Officer, Calcutta	84
Inspector, Eastern Bengal State Railway	205^
Chemical Examiner, Medical College, Calcutta	300
Managing Agent, Alipore Coal Company, Limited	...	3	50
Manager, Government Estates, Jeypnr Haut	...	1	20
Ditto, ditto, Khasmahals	...	7	130
Ditto, Baron's Tea Estate, Julpigoree	...	5	111
Ditto, Bengal Silk Company Limited, Azimgunge	...	4	42
Ditto, His Highness the Maharajah of fiurdwan's garden	...	13	285
Ditto, Bhootan Estate Association, Siliguri	...	1	20
Assistant Manager, Hutwa Raj	...	4	89
Government High School, Rangoon	...	1	18
La Martiniere School, Calcutta	22
Outram Institute, Dum-Dum	600
St. Vincent's Home, Kidderpore	55
Zenana Mission, Calcutta	249
Baptist Mission, ditto	550
Church of England Mission, Calcutta	104
The Portuguese Mission in Bengal	122
General Hospital, Calcutta	118
Ditto, Howrah	...	1	12
Eden Hospital, Calcutta	1,050
Commissary of Ordnance, Calcutta	652
Suez Canal Stations, Egypt	...	10	300
Hon'ble Sir C. Petheram, Calcutta	10
„ H. Beverley, Calcutta	57
„ H. A. Cockerell, ditto	8
„ C. B. Garrett ditto	66
„ W. S. Whiteside, Madras	...	1	69
— Atkins, Esq.	4
H. Arbuthnot, Esq., Assensole	29
A. B. Antram, Esq., Calcutta (for Cathedral)	406
O. A. B. Anderson, Esq., Assam	...	4	58
G. Alexander, Esq., Seebpore	34
S. T. Apcar, Esq., Garden Keach	60
Miss Allen, Ballygunge	2
Reverend A. Bruske, ilanchee	...	3	50
„ O. Berg, BamporeHaut	...	4	85
„ T. Bunckholdt, ditto	...	3	46
„ H. P. Boerresen, ditto	...	9	147
„ F. T. Cole, Bajmahal	...	3	48
„ Kiefel, Giridi	9	157
„ C. Molet, Banchee	...	15	246
„ W. Smith, Calcutta	91
H. G. W. Batten, Esq., Sandoway	...	2	56
G. W. Bartlett, Esq., Calcutta	33
E. D. Bolst, Esq., do.	9
R. Bellety, Esq., Ballygunge	7
H. Beadon, Esq., Dinagepur	...	11	213
T. B. Curtis, Esq., Darjeeing	...	7	84
* J. G. Charles, Esq., Alipore	8
„ Dr. D. D. Cunningham	12
T. A Counsel, Esq., Calcutta	4
Dr. J. Dyer, Pachamba	...	8	54
A. F. Dowling, Esq., Chittagong	57
B Ellis, Esq, Calcutta	13
— Fuller, Esq., do.	8
Captain Fisher, Ship <i>Albyn</i>	25
Chief Officer, S. S. <i>City of Agra</i>	8
Dr. M. Foster, Cambridge	...	1	€0
Edward Gray, Esq., Assam	...	1	113
J. Gammie, Esq., Mungpoo	...	1	14
Mrs. Grant, Balasoro	...	5	107
Captain J. Henderson, S. S. <i>Goorkha</i>	25

APPENDIX II—continued.

TO WHOM SENT.				Wardian oases.	Boxes.	Number of plants.
Miss. E. Harwood, Calcutta	...	...	...	.....	3	51
Colonel Jarrett, ditto	...	...	...	.....	.....	14
*J. Flower Jackson, Esq., London	...	...	...	.....	1	85
Henry J. Kowalsky, San Francisco	...	...	...	.....	1	150
S. J. Kilby, Esq., Calcutta, for Salt Gola compound	...	...	...	.....	.....	811
W. Kilby, Esq., Rungpore	...	...	...	.....	.....	29
W. Kelly, Esq., Howrah	...	...	...	.....	.....	14
A. F. Kieiland, Esq.	...	...	...	.....	.....	36
Dr. Kirkman, Hastings	...	...	...	.....	.....	4
Mrs. Lampen, Dinapore	...	...	...	.....	2	50
Mrs. Lyall, Calcutta	...	...	...	.....	.....	95
J. Mackay, Esq., Calcutta	...	...	...	.....	2	35
J. Macfayden, Esq., ditto	...	...	...	.....	1	219
J. McPherson, Esq., ditto	...	...	...	.....	.....	42
E. H. Man, Esq., Andamans	...	...	...	2	.....	332
R. C. S. Mackenzie, Esq., Howrah	...	...	...	.....	.....	22
H. Martindell, Esq., Government Engineering College, Seebpore.	...	...	...	.....	.....	40
E. F. Mondy, Esq., Government Engineering College, Seebpore	...	...	...	.....	.....	71
Mr. Milne, Calcutta	...	...	...	.....	.....	4
Mrs. Nash, Darjeeling	...	...	...	.....	1	6
J. C. Parker, Esq., Calcutta	...	...	...	.....	.....	4
Colonel Perreau, ditto	...	...	...	.....	.....	92
Dr. J. G. Pilcher, Howrah Hospital...	...	...	...	.....	.....	265
G. McD. Peche, Esq., Moulmein	...	...	...	1	1	37
T. J. Rowell, Esq., M.D., Singapore	...	...	...	1	.....	61
J. Rocco, Esq., Calcutta	...	...	...	.....	.....	36
W. Stalkartt, Esq., Ghosery	...	...	...	.....	.....	150
J. S. Slater, Esq., Government Engineering College	...	...	...	.....	.....	22
Colonel Stanton, Simla	...	...	...	.....	1	12
A. Simson, Esq., Calcutta	...	...	...	.....	.....	216
Colonel C. Stansmore, ditto	...	...	...	.....	.....	3
Captain Sanders, S. 8. Rajputana	...	...	...	1	.....	31
Dr. E. Sanders, Mozufferpore	...	...	...	.....	4	44
W. Tennon, Esq., Raneegunge	...	...	...	.....	.....	20
R. Turnbull, Esq., Calcutta	...	...	...	.....	.....	1
F. W. Tytler, Esq., Saharanpur	...	...	...	.....	2	60
G. Urquhart, Esq., Jalpaiguri	...	...	...	.....	.....	8
Sir Alexander Wilson, Calcutta	...	...	...	.....	.....	18
Colonel H. Ward, Bhopal	...	...	...	.....	3	67
A. White, Esq., Kaneegunge	...	...	...	.....	1	1,600
Major Wace, Ordnance Department, Cossipore	...	...	...	.....	.....	146
D. Yule, Esq., Garden Keah	...	...	...	.....	.....	12
Messrs. Burn and Company, Howrah	...	...	...	.....	.....	20
„ Bird and Company, Calcutta	...	...	...	.....	3	100
„ Gillanders, Arbuthnot and Company, Calcutta	...	...	...	.....	4	10,000
„ Stanley Price and Company, Calcutta	...	...	...	.....	.....	12
H. H. the Ex-King of Oudh	...	...	...	.....	.....	4
H. H. the Khedive of Egypt	...	...	...	1	.....	30
Sooruj Deo Narayan Sing, Balegurh	...	...	...	.....	.....	13
Baldeo Shao, Calcutta	...	...	...	.....	.....	10
Roy Raghuben, Calcutta	...	...	...	.....	.....	4
Rajah Madhub Chundra Giri, Tarkeshwar	...	...	...	.....	.....	24
„ Nohor Sing, Durmahatta	...	...	...	.....	.....	12
Coomar Nil Krishno Roy Bahadoor, Calcutta	...	...	...	.....	.....	41
M. Ghose, Esq., Calcutta	...	...	...	.....	.....	82
Baboo G. C. butta, Seebpore	...	...	...	.....	.....	48
„ P. C. Sein, Shibpore	...	...	...	.....	.....	38
„ B. B. Ghose, Taki	...	...	...	.....	.....	3
„ D. N. Bose, Calcutta	...	...	...	.....	.....	21
„ P. K. Bose, „	...	...	...	.....	.....	2
„ J. N. (howdhury, Seebpore	...	...	...	.....	.....	4
„ K. P. Chatterjee, Durbhunga	...	...	...	.....	1	12
„ S. P. Chatterjee, Calcutta	...	...	...	.....	.....	58
„ B. K. Mullick, ditto	...	...	...	.....	.....	12

APPENDIX II—concluded.

TO WHOM SENT.					Wardian cases	Boxes.	Number of plants.
Babu	B. G. Mulliok, Calcutta	...	...	...	.....	.....	8
>	B. N. Dutta, Howrah	...	...	...	.....	.....	3
>•	B. B. Boy, Serampore	...	...	...	.....	.....	3
>	B. C. Banerjee, Ballaghur	...	...	...	.....	.....	3
,	K. C. Pundit, Thana Makooah	...	...	...	.....	.....	4
,	G. C. Doss, Gurdaspur	...	...	...	.....	2	16
,	H. M. Mookerjee, Seebpore -	...	...	...	.....	.....	72
,	H. N. Paul, Garden Beach	...	...	...	.....	.....	2
,	H. M. Moduck, Seebpore	...	...	...	.....	.....	4
,	J. N. Boy, Horipal	...	...	...	.....	.....	30
,	K. D. Ghose, Augurparah	...	...	...	.....	.....	1
,	K. N. Mookerjee, Shyakhala	...	...	...	.....	.....	3
,	K. P. B. Chowdhoo, Seebpore	...	...	...	.....	.....	2
,	K. L. Burmon, Khantra	...	...	...	.....	.....	1
,	N. C. Paramaniok, Seebpore	...	...	...	.....	.....	2
,	N. C. Sein, Berhampore	...	...	...	.....	.....	2
,	P. K. Gossuainy, Tarkeshwar	...	...	...	.....	1	11
,	P. C. Ghosh, Calcutta	...	...	...	.....	.....	1
,	B. Malleah, Howrah	...	...	...	.....	.....	1
,	B. L. Sircar, Calcutta	...	...	...	.....	.....	1
,	R. O. Dass, ditto	...	...	...	.....	.....	1
,	B. L. Dass, Shingoor	...	...	...	.....	.....	2
,	SQ. Bowfi, Chindurah	...	...	...	.....	.....	50
,	S. K. B. Chowdhoo, Seebpore	...	...	...	.....	.....	3
,	*S. P. Sircar, ditto	...	...	...	.....	.....	2
,	S. C. Mookerjee, ditto	...	...	...	.....	.....	11
,	S. P. Sen, Chandernagore	...	...	...	.....	.....	5
,	T. N. Baeerjee, Calcutta	...	...	...	.....	.....	12
	Horree Malee, Nurseryman, Manicktollah	...	...	...	.....	.....	16
	BBB Malee, ditto, ditto	...	...	...	.....	.....	27
	Dhurmo Dass, Malee, Caloutta	...	...	...	.....	.....	8
	Eoylash Ohunder Bhooang, Seebpore	...	...	...	.....	.....	3
	ft. TT. Mirza, Calcutta	...	...	...	.....	.....	10
	Shaik Soobeed, Thana Makooah	...	...	...	.....	.....	2
	Shaik Abdool, Seebpore	...	...	...	.....	.....	1
	Syed Imad Iman, Dinapore	...	...	...	.....	1	6
	Shaik Nobimuddin Mally, Metiabrooj	...	...	...	.....	1	18
Total					31	405	46,104

APPENDIX III.

*Statement of seeds received from 1st April 1886 to 31** March 1887.*

From whom received.	Number of parcel* or packet*.
W. T. Thiselton Dyer, Esq., F.R.S., C.M.G., Director, Royal Garden, Kew, London	41
Dr. Regel, Imperial Garden, St Petersburg!, Russia	119
Botanic Garden, Jamaica	7
Ditto, Natal, Africa	18
Ditto, Hong-Kong	12
Ditto, Demerara	7
Ditto, Tasmania	25
Ditto, Penang	1
Ditto, Singapore	18
Ditto, Buitenzorg	1
Ditto, Sydney	12
Ditto, Peradeniya	2
Ditto, Berlin	1
Ditto, Saharanpur	95
Sir Ferdinand Von Muller, F.R.S., Melbourne, Australia	5
Messrs. Haage and Schmidt, Erfurt, Prussia	180
Jardin des Plantes, Paris	1
Secretary to the Acclimatisation Society, Brisbane, Queensland	7
P. W. Reasoner, Esq., Manatee, Florida, United States, America	80
Hon'ble J. B. Thurston, C.M.O., Governor of Fiji	3
Superintendent, Horticultural Garden, Lucknow	49
Conservator of Forests, Madras	11
Deputy Conservator of Forests, Cuddapah	2
Captain Sanders, S. S. <i>Jetaiputana</i>	3
Herr H. & K. Kunstler, Thaiping, Laroot, Perak	1
IE. H. Man, Esq., Port Blair	8
A. F. Dowling, Esq., Chittagong	2
Colonel M. dementi, Simla	1
Collector of Ganjam	1
Secretary to the Agri-Horticultural Society's Garden, Madras	8
A. Jamieson, Esq., Ootacamund	1
Colonel R. S. Jago, Deputy Commissioner of Forests, Ootacamund	1
J. Gammie, Esq., Mungpoo...	19
J. Li Lister, Esq., Kalimpong	5
Reverend G. M. Wilson, Rungyroom...	5
Secretary, Agri-Horticultural Society of India	8
C. Maries, Esq., Durbhanga	3
C. B. Clarke, Esq., Shillong	2
Kevenend A. Campbell, Pokhuria, Manbhoom	3
Messrs. Stanley Price and Company, Calcutta	88
Colonel H. S. Jarrett, Calcutta	2
Badul Khan, Plant Collector	29
Chittagong	2
Babu Bishumbhur Ghose, Taki	14
Total	903

APPENDIX IV.

Statement showing seeds distributed from the Royal Botanic Garden during the year 1886-87.

To whom sent.	Number of parcels or packets.
W. T. Thiselton Dyer, Esq., F.R.S., C.M.G., Director, Royal Garden, Kew, London ...	90
Dr. Regel, Imperial Garden, St. Petersburg^, Russia ...	2
Botanic Garden, Edinburgh ...	2
Ditto, Cambridge ...	6
Ditto, Hobart Town, Tasmania ...	2
Ditto, Brisbane ...	2
Ditto, Melbourne ...	2
Ditto, Adelaide ...	2
Ditto, Utrecht ...	2
Ditto, Jjeiden ...	...
Ditto, Buitenzorg, Java ...	32
Ditto, Hong-Kong ...	3
Ditto, Gordon Town, Jamaica ...	3
Ditto, Singapore... ...	6
Ditto, Peradeoiya, Ceylon ...	10
Ditto, Ootacamund, Madras ...	1
Ditto, Gunesh Khind, Poona ...	1
Ditto, Saharanpur ...	24
Ditto, Darjeeling^ ...	277
Director, Compagnie Continentale d'Horticulture, Ghent ...	10
M. Louis Van Houtte, Royal Nursery, ^ ditto ...	10
Mons. Le Directeur, Jardin des Plantes, Paris ...	• 2
Secretary to the Municipality, Akyab ...	1
Ditto, Agri-Horticultural Society, Madras ...	7
Ditto to the Agri-Horticultural Society of India, Calcutta ...	9
Superintendent, Horticultural Garden, Lucknow „ • ...	14
Ditto, ditto, Lahore ...	64
Ditto, Lahore Municipal Garden, ditto ...	8
William Bull, Esq., F. L. S., Chelsea ...	65
P. W. Beasoner, Esq., Manatee, Fla., United States, America ...	348
Messrs. James Veitch and Sons, Chelsea ...	4
„ Haage and Schmidt, Erfurt ...	1
„ C. P. Williams and Brothers, Ceylon ...	6
„ D. Cannon and E. Brace, Salbris, France ...	5
Sir Ferdinand Yon Muller, F. R. a., University, Melbourne ...	...
Son Excellence Madame Yon Schubert, Wesembury, Bussia ...	65
E. F. Mondy, Esq., Ayr, Scotland ...	115
James Inglis, Esq., Sydney ...	4
W. G. Head, Esq., Crystal Palaoe, London ...	17
K. Derry, Esq., Assistant Conservator of Forests, Malacca ...	1
Deputy Commissioner, Mandalay ...	5
Ditto, Dhubri, Assam ...	2
Ditto, Gauhati, ditto ...	2
Ditto, Sultanpur, Oudh ...	2
Assistant Commissioner, Lalitpur ...	1
Commissary of Ordnance, Fort William ...	16
Conservator of Forests, Moulmein, Burma ...	1
Ditto, Tenasserim Circle, Burma ...	1
Ditto, Eangoon, ditto ...	1
Ditto, Northern Circle, Ootaoamund ...	7
Ditto, Nagpur ...	1
Deputy Conservator, Orissa Division, Cuttack ...	1
Ditto, Chittagong Division, Rangamati ...	1
Ditto, Chota Nagpur Division, Banohee ...	1
Offg. Ditto, Nagpur ...	4
Assistant Conservator of Forests, Gorakhpur ...	1
E. H. Man, Esq., Andamans ...	4
C. Maries, Esq., Durbhunga ...	3
Surgeon-General Gh Bidie, c.s.i., Madras ...	3
M. B. Weld, Esq., Kistna, Madras ...	12
J. Gaxmmie, Esq., Mungpoo ...	14
A. F. Dowling, Esq., Chittagong ...	7
Manager, Joy pur Estate, Joypur Hftt ...	1
Ditto, Mourbhunj Baj ...	1
Honorary Secretary, Outram Institute, Dum-Dum ...	13

APPENDIX IV—continued.

Towhomaent.			Number of parcels or packets.
Executive Engineer, Mandalay	...	...	...
Ditto, Arrah	... • • •	...	...
Assistant Executive Engineer, Kistna	...	...	...
Ditto ditto, Sasseram, Shahabad	...	...	1
District Engineer, Bhagulpore	...	...	1
Local Fund District Engineer, Goonada	...	...	1
Superintendent, Lall Bagh, Bangalore	...	...	1
Chairman, Municipal Garden, Karachi...	...	...	1
Surgeon-General C. D. Madden, Simla	...	...	1
Surgeon-Major W. M. Courtney, Bangoon	...	...	2
Major G. F. Massy, Punjab	...	...	1
„ O H. Scott, R.A., Ichapur	...	...	2
„ Band, R.E., Calcutta	...	...	9
Lieutenant-Colonel Mitchell, Peshawar	...	...	16
Lieutenant Leonard O. Peters, Secunderabad	...	...	2
„ M. Shanahan, Mount Abu	...	...	2
Colonel J. Tjpperton, C.B., Meerut	...	...	1
„ Einoaid, Sehore	...	...	1
„ Perreau, Calcutta	...	...	2
T. Cooke, Esq., LL D., & C, Poona	...	...	2
Thomas Harris, Esq., A j mere	...	...	11
Beverend Father Dumont, Caloutta	...	...	12
G. H. Mayer, Esq., Allahabad	...	...	2
Messrs. Carlisles Nephews and Company, Calcutta	...	...	1
„ Fox and Aitchison, Ghazipur	...	...	1
„ Gillanders, Arbuthnot and Company, Calcutta	...	...	1
„ J. S. Busling Brothers, Malipur	...	...	3
„ Schoone, Kilburn and Company, Caloutta	...	...	6
„ Stanley Price and Company	...	...	134
Bajah of Moorsan, Moorsan Fort	...	...	1
Officer in charge, Cantonment Garden, Bangoon	...	...	2
Vice-Chairman, Mozufferpore Municipality	...	...	1
Goods Superintendent, East Indian Bail way, Howrah	...	...	2
Politioal Agent, Deoli	...	...	51
Thomas Barnard, Esq., Buxar • • •	...	...	2
J. D. Beglar, Esq., Chogdah	...	...	1
James H. Burke, Esq., Sirhind	...	...	1
Cannon, Esq., Caloutta	...	...	41
W. C. Costley, Esq., Sahebgunge	...	...	1
D. D. Cruz, Esq., Malabar	...	...	1
Ed. Van Cutsem, Esq., Calcutta	...	...	5
B. Ellis, Esq, Bahawalpur	...	...	2
Signor Gallian, Calcutta	...	...	1
W. Grindal, Esq., Chenab •..	...	...	2
J. M. Hemy, Esq., Baroda	...	...	4
M. Lawrent, Caloutta	...	...	Us
J. M. Macphial Esq., Bangalore	...	...	1
T. J. L. Mayer, Esq., Bannu	...	...	37
B. W. S. Mitchell, Esq., Garden Beach	...	...	12
Babu H. D. Mittra, Calcutta	...	...	2
W. J. Prinoe, Esq., Banda	...	...	1
E. D. Puckle, Esq., Calcutta	...	...	16
Mrs. Bickitts, Hoshangabad	...	...	1
„ H. H. Bisley, Darjeeling	...	...	1
B. Robertson, Esq., Mysore	...	...	15
J. Bobson, Esq., Dalhousie	...	...	1
Dr. Theodor Schuohardt, Germany	...	...	6
E. J. Selvaistre, Esq., Bijnor	...	...	1
Mrs. Sladen, Bareilly	...	...	7
C. P. Smith, Esq., Etawah	...	...	1
F. J. Smith, Esq., Diamond Harbour..	...	...	6
B. D. Spedding, Esq., Moradabad	...	...	2
Captain Symons, S. S. Pckin	...	...	320
George Thomas, Esq., Monghyr	...	...	1
Dr. W. Wilberforce Dunkley, S. S. Wooroonga	...	...	70
J. M. Ziffo, Esq., Calcutta	...	...	08
Babu Atul Krishna Bose, Belgoriah	...	...	1
„ Aubhoy Churn Dey, Thanamakooah	...	...	1
„ Bama Jhurn Paramanik, Nazirgunge	...	...	1

APPENDIX TV—concluded.

To whom sent.				Number of parcels or packets,
Babu Bishumbhur Ghosh, Taki	...	...	...	14
„ Bhupendra Kumar Roy, Narail	...	...	...	1
„ D. N. Bose, Calcutta	...	...	...	21
„ Durga Das Misra, Sitarampur	...	...	...	4
„ Jadub Chandra Biswas, Calcutta...	...	...	...	1
„ Jogindra Nath Chowdhury, Seebpore	...	...	...	&
„ K. P. Chatterjee, Durbhunga	...	...	...	1
„ Nora Sinha Dutta, Howrah	...	...	...	20
„ R. Maliah, Howrah	...	...	...	1
„ P. Q-hosh, Calcutta	...	...	...	1
„ Protap Narayan Singh, Bankoora	...	...	...	1
„ S. P. Chatterjee, Calcutta	...	...	...	40
„ Taooor Dass Banerjee, Calcutta	...	...	...	61
Kumar Gozendra Narayan, Cooch Behar	...	...	...	1
Raja XTpendra Chundra, Narail	...	...	...	1
Assistant Surgeon N. C. Bose, Silchar	...	...	...	5
Lala Brij Nath Holkar	...	...	...	16
Total				2,534

MUNICIPAL DEPARTMENT.

MEDICAL.

CALCUTTA, THE 6TH AUGUST 1887.

RESOLUTION.

BEAD—

The Annual Report of the Royal Botanic Garden, Calcutta, for the year 1886-87.

This being the report for the hundredth year, Dr. King has rightly taken the opportunity of giving a sketch of the history of the institution. The following extract contains an interesting account of the garden since its formation:—

The suggestion to form a Botanic Garden here was first made to the Government in Calcutta in June 1767, by Colonel Robert Kyd, then Superintendent of the Hon'ble Company's Dockyard at Edderpoore. The proposal was favourably entertained by the Governor-General, and its adoption was recommended to the Supreme Board in London during the same month, practical effect being given to it during the following year by the selection, as a site, of a large piece of land immediately below Colonel Kyd's private garden at Shalimar. This piece of land, besides the Botanic Garden as it is now limited, included about fifty acres, which form part of the grounds of the present Engineering College. Colonel Kyd was himself an ardent horticulturist, and he had brought together in his private garden at Shalimar a large collection of exotic plants, chiefly from the Straits. He was therefore very appropriately appointed the first Superintendent of the Botanic Garden which had been founded at his suggestion. Colonel Kyd continued to perform the duties of Superintendent until his death in 1798. On Colonel Kyd's death, Government decided to put the garden under the charge of a special officer who should have no other duty. Dr. William Roxburgh, the Company's Botanist in Madras, was therefore transferred from that Presidency, and was installed at Seebpore in November 1798. No better selection than that of Dr. Roxburgh could have been made. Dr. Roxburgh, for many years prior to his transfer, had been engaged in studying the then little known Flora of the Northern Circars in the Madras Presidency. He was a most ardent and enthusiastic botanist, and a good gardener. Dr. Roxburgh continued to be Superintendent until 1814, when he was obliged to proceed to the Cape on account of his health. From the Cape he went on to St. Helena, and from thence to England, where he died during the following year. Dr. Roxburgh was the first botanist who attempted to draw up a systematic account of the plants of India. During his busy life in this country he prepared a *Flora Indica*, which contained systematic descriptions of all the indigenous plants known to him, as well as of many exotics then in cultivation in the neighbourhood of Calcutta. The manuscript of this work he took with him when he left India, intending to publish it during his residence in England. His death prevented the execution of this plan; and, with the exception of the first volume, which was printed with some additions and interpolations by Drs. Wallich and Carey in 1820, the book remained unpublished until 1882. In the latter year it was printed, exactly as the author had left it, by the piety of his sons, Captains James and Bruce Roxburgh, neither of whom was a botanist. This book is the basis of all subsequent Indian botanical works. It is an admirable production, the descriptions are accurate and graphic, and its authorship justly entitles Roxburgh to his title of the Father of Indian Botany. Until the year 1872, when the publication of the "Flora of British India" was begun by the distinguished botanist Sir Joseph Hooker, Roxburgh's was the only single book through which a knowledge of Indian plants could be acquired. A second edition of this excellent manual was issued by Mr. C. B. Clarke in 1874 at a merely nominal price, Mr. Clarke's desire being to put the book within the reach of the poorest student. Besides the *Flora Indica*, Roxburgh published, at the expense of the Hon'ble Company, in three large folio volumes, his *Planta Coromandeliana*, being descriptions with figures of three hundred of the most striking plants of the Coromandel Coast. Dr. Roxburgh was immediately succeeded in the Superintendentship of the Garden by Dr. Francis Buchanan (afterwards Hamilton), who at the time was on special duty in connection with an extended enquiry into the agriculture of India and in the collection of materials for a Gazetteer. Dr. Hamilton, who was an accomplished botanist and zoologist, collected a vast mass of material, part of which was published in his own name, but the bulk of which, after many years' suppression, was published under the title of Montgomery Martin's History, Topography and Statistics of Eastern India. Dr. Buchanan Hamilton held the charge of the garden for only a short time, and he was succeeded in 1817 by Dr. Nathaniel Wallich, lately Surgeon to the Danish Settlement at Serampore. Dr. Wallich was an able and most energetic botanist, and during the earlier part of his term of office he organised collecting expeditions into the remote and then little known regions of Kumaon, Nepal, Silhet, Tenasserim, Penang, and Singapore. Dr. Wallich in fact undertook a botanical survey of a large part of the Indian Empire. The materials (in the shape of dried specimens of fruits) thus accumulated were taken by Dr. Wallich to London, and, after being named by him and by other botanists, they were distributed in numbered collections to the leading botanical institutions in Europe. In this great distribution, Dr. Wallich included the collections of several other botanists which had been made over to him for the purpose. That

liberality with which these specimens were given away was so extreme that, in the garden report for the year 1843, we find Dr. Griffith (who had been appointed to officiate for Dr. Wallich during his absence in England) complaining that the herbarium had been completely denuded of every specimen collected during the first fifty years of the existence of the garden. Besides distributing these enormous collections, Dr. Wallich was enabled, through the munificence of the Hon'ble Company, to publish, under the title *Plantas Asiaticae Rariores*, three superb volumes illustrated by coloured figures of a high degree of excellence. Dr. Wallich retired in 1846 and died in 1854. During the lengthened absences of Dr. Wallich in Europe, his place at the garden was filled by Dr. W. Griffith, whose premature death deprived 'Botanical Science of one of its ablest and most industrious votaries. Dr. Griffith's extensive notes and numerous drawings were, after his death, published by Government in nine volumes. Dr. Wallich was succeeded by Dr. Hugh Falconer. Dr. Falconer was a Palaeontologist, well known by his researches on the Sivalik Fossil Mammalia. In 1855 he left the country on account of ill-health, and was succeeded as Superintendent by Dr. Thomas Thomson, a traveller and botanist of much ability, the coadjutor of Sir Joseph Hooker in the collection and distribution of an extensive and well-known herbarium of East Indian plants, and the joint author of the first volume of a new *Flora Indica*. Dr. Thomson retired in 1861, and was succeeded by Dr. Thomas Anderson, whose untimely death in 1870 was caused by disease contracted during his efforts for the introduction of the quinine-yielding *Cinchona*s into the Sikkim Himalaya. For the two years subsequent to Dr. Anderson's departure from India, Mr. O. B. Clarke acted as Superintendent, and during his incumbency he began the series of botanical publications which has earned for him so high a scientific reputation.

2. From the first foundation of the garden, it was understood that it was to be made a source of botanical information for the possessions of the Company, and at the same time a centre to which exotic plants of economic interest could be imported for experimental cultivation, and from which, in turn, they could be issued for distribution in the Company's possessions. It was also intended to assist in introducing indigenous Indian products to new markets. It was intended that it should not only be a botanical, but also a horticultural and agricultural garden. The preceding paragraph shows how the botanical work laid out for the garden has been accomplished. But the economic side has by no means been neglected. At first great hopes were entertained that the spices which rendered the trade of the Company with the Moluccas and other of the Malayan Islands so valuable, might be cultivated in Bengal. The earliest efforts of Colonel Kyd were therefore directed to the introduction of the trees which yield nutmegs, cloves and cinnamon, and of the pepper vines. It was, however, speedily proved that the climate of Northern India is quite unsuited to these equatorial species. The equatorial fruits, such as mangosteen, langsat, dinkko and bread-fruit; were also tried with a similar result; and so were the temperate fruits of Europe. In fact, no small part of the benefits conferred on the country by the garden in its early days was the demonstration by practical experiment that certain natural products, many of them of a most desirable kind, cannot be grown in Bengal; much money and bootless effort being thus saved to the country. The introduction of exotic timber trees also received early attention; and in the garden there still remain a few of the original mahogany trees introduced in these early years. The introduction of tea was one of the items put down in Colonel Kyd's original programme; and in the final establishment of what has now become one of the most important industries in Northern India, the garden bore a most important part. Tea was introduced through its agency, and the cultivation of the quinine-yielding *Cinchona*s of the Andes was initiated and carried to a successful issue under the direction of Superintendents of this garden. In the improvement of Indian cotton, and in the introduction both of that and of jute to the markets of Europe, the garden authorities worked cordially hand in hand with the Agri-Horticultural Society of India, with what success it is unnecessary to point out. By the introduction of some of the best kinds of sugarcane from the West Indies, and the dissemination of these to all parts of the country, a considerable improvement was effected both on the quality and quantity of the sugar crop of the country. In this matter also the Agri-Horticultural Society worked hand in hand with the garden authorities. Very soon after the establishment of the Society just mentioned, a considerable piece of land in the garden was made over to it rent-free, and on this land the Society conducted the greater part of its operations for forty years. In fact, it was not until the year 1872 that the Society's garden was transferred to its present site in Alipore. It is unnecessary to discuss in detail the numerous experiments in the cultivation of economic plants which have been conducted in the garden since its beginning. A few of the products tried may simply be mentioned. Chief among these are flax, hemp, tobacco, henbane, vanilla, coffee (Arabian and Liberian), opium, pears, apples, peaches, apricots, plums, cherries, almonds, walnuts, chestnuts, pineapples, guavas, mangoes, pineapples, papayas, watermelons, muskmelons, cucumbers, pumpkins, and cress. As regards horticulture, it may suffice to say that a large proportion of the kinds of exotic plants now found in private gardens in India has been introduced to the country through the agency of this garden, and that the improved methods of cultivation which now obtain were to a great extent initiated here.

3. In 1820 about fifty acres of land belonging to the garden were made over by Government to the Society for the Propagation of Christian Knowledge, and on this land the Society founded the institution so long known as Bishop's College, but since 1880 (owing to its retransfer to Government) as the Government Engineering College. In the year 1864 the garden was devastated by a cyclonic storm of extraordinary violence, which either uprooted or broke to pieces the majority of the trees in it, and, by blowing down all the plant-houses, hopelessly crushed their contents. The few trees which escaped on that occasion were sadly

tedaoed in number by a second cyclone which passed over the garden in 1867; and, at the present time, almost the only trees dating from before 1867 are the great banyan and a smaller tree of the same sort, some peepuls and country almonds, about twenty mahogany trees and some palms. It is almost a pity that the occasion of its destruction by these cyclones was not taken to remove the garden to a site on the Calcutta side of the Hooghly. For, although there are certain advantages in the garden being so remote from the town, there can be little doubt that the balance is in favour of a site more easily accessible to the residents of Calcutta. The destruction of all shade, which resulted from the removal of the trees, allowed the inveterate weed known popularly as ooloo grass, anj botanically as *Imperata cylindrical* to take possession of the whole of the ground not occupied by roads or flower borders; so that when I took charge of the garden in J871 it presented rather a sorry appearance. The liberality of the local Government, ~~under~~ whose control it soon thereafter passed, has made it possible for me to lay out the garden entirely anew. The whole of its area has since that date been treated for landscape effects, sheets of ornamental water having been formed, and, with the earth so obtained, undulations having been thrown up. New roads and footpaths have also been made; a building for the Herbarium and three handsome conservatories for the more delicate kinds of living plants have been erected; nursery buildings have been put up j and the garden staff have been furnished with comfortable houses. .

4. Botanically the most important feature in the garden is its Herbarium, or collection of dried plants. As has already been explained, all the collections prior to Dr. Wallich's visit to England in 1828 were distributed by him to scientific institutions abroad. The commencement of the present collection dates, therefore, from his return to India in 1832. It consists of plants contributed by almost every worker at Botany in India since that date, and of considerable contributions from Botanists in Europe. It is first and foremost an Indian Herbarium, but the plants of South-Eastern Asia, of Japan, of Persia and of Asia Minor ara fairly well represented. Those of Europe are also excellently represented; but in African and American plants the collection is comparatively poor. Constant communication and interchange of specimens have been kept up for the last fifty years with the great national collection at Kew; and to the distinguished Directors of that institution, Sir William Hooker and his son and successor Sir Joseph, the Calcutta Herbarium is indebted for invaluable contributions. Interchanges have also been kept up with other European Botanic Institutions, such as the Herbarium of the British Museum, of the *Jar din de* P I antes*, Paris, the Imperial Gardens at St. Petersburg and Berlin, the Royal Botanic Gardens at Buitenzottr in Java, at Peradeniya in Ceylon, and at Saharanpore; and with many other institutions. Amongat the private contributors in past times from whom the Herbarium has received the most valuable collections must be mentioned Vicary, Edgeworth, Griffith, Wi^ht, Simons, Law, Gibson, Stocks, Duleell, Kurz, Miquel, and Maipgay. The most important contributions received during recent years have been duly mentioned in my annual report.

The transformation which has taken place in the aspect of the garden has been the work of Dr. King himself, whose skill, taste and assiduity were fully recognized by Sir Ashley Eden and supported by him with liberal grants of money. The garden is now in its scientific capacity admittedly the first of all botanical institutions in Asia, and has been designated by high authority the Kew of the East.

2. Valuable additions were made to the collection of dried plants in the herbarium during the year. The chief contributors were Dr. Aitchison, of the Afghan Boundary Commission; Mr. Thisleton Dyer, Director of the Botanical Garden at Kew; Dr. Gills; Dr. G. Watt; Dr. Rigel, of the Imperial Garden at St. Petersburg; Mr. Medley Wood, of the Botanic Garden, Durban; Mr. Pringle; Mr. H. O. Forbes; I^Praïn, Curator of the Herbarium, Royal Botanic Garden, Seebpore; Mr. Gustav^ Mlttn; Mr. J. F. Duthee; Colonel H. Collett, C.B., of Saharunpore; Reverned J. Campbell, of Manbhoom; and Mr. J. S. Gamble, Conservator of Forests. Four hundred named species were received from Mexico, and three excellent named collections were sent by Mr, Medley Wood from Natal.

3. During the year 8,064 plants were received and 46,104 were issued. Nine hundred and three packets of seeds were received and 2,534 packets were distributed. The plants and seeds were distributed chiefly to Botanical Gardens, Forest Officers, District Officers, and Officers of the Public Works Department. A large quantity was also supplied to private individuals. The principal contributors were the Superintendents of the several Botanical Gardens.

4. Dr. King was engaged for some time in preparing a Monograph on "The species of Ficus of the Indo-Malayan and Chinese Countries." The first part of this valuable work has evoked strong approbation from scientific men and bodies, and the Lieutenant-Governor has had pleasure in directing that copies of it be supplied to the great Botanical Institutions of the world.

5. The Lloyd Botanic Garden at Darjeeling was under the charge of Mr. Kennedy. A lease has been obtained of the plot of land between the Botanic Garden and the Eden Sanitarium. This land is being used as a vegetable garden, and is under the charge of the Superintendent of the Botanic Garden. The acclimatised English potatoes have proved a failure, and the experiment made by private growers has also been unsuccessful.

6. A sum of Es. 1,373 was realized by the sale of surplus plants at the Calcutta garden, and Us. 1,180 by the sale of produce of the Darjeeling garden.

ORDER.—Ordered that a copy of this Resolution and of the Report be submitted to the Government of India, in the Revenue and Agricultural Department, for information.

Ordered also that a copy of this Resolution be forwarded to the Superintendent of the Botanical Gardens for information.

By order of the Lieutenant-Governor of Bengal,

COLMAN MACAULAY,

Secretary to the Government of Bengal.

No, 3484.

COPT forwarded to the Superintendent of the Botanical Gardens, Calcutta, for information.

By order of the Lieutenant-Governor of Bengal,

L. P. SHIRRES,

Ofg. Undersecretary to the Govt. of Bengal.

CALCUTTA,
The 6th August 1887.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN FOR THE
YEAR 1887-88.

No. 21G, dated Calcutta, the 15th May 1888.

From—DAVID PRAIN, ESQ., MA., MB., Acting Superintendent, Royal Botanic
Garden, Calcutta,

To—The Secretary to the Government of Bengal, Financial Department.

I HAVE the honour to submit herewith the One Hundred and First Annual
Report of the Royal Botanic Garden.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN FOR THE YEAR 1887-88.

No great change occurred in the garden during the year. Some minor improvements were effected. One more entrance gate was provided with a suitable durwan's lodge. A new road was made from the picnic banyan to the tree-nursery. This supplies a felt want, and forms the first instalment of a road system that will open up the part of the garden occupied till 1872 by the Agri-Horticultural Society, where the shrubs and trees are now in a condition worthy of being exhibited. This system will provide an alternative entrance to the gardens from the Andul Road. A considerable portion of one of the conservatory houses was replanted. Plants of the giant water lily (*Victoria regia*) were grown in several of the garden lakes. They attracted visitors largely, and though, as is usual, nearly all perished in the cold weather, seedlings have been raised in the nurseries for the ensuing year. The season being favourable to vegetation, and the number of plants exceeding that of former years, the show of orchids was finer than ever. Five separate attempts at encroachment on the boundary of the garden have been made during the year. All of these were successfully repelled, but the frequency of the occurrence, which has taken place in spite of the existence of a well-defined series of boundary pillars, has rendered it necessary to address Government for instructions as to the best means for preventing such disputes.

2. Notwithstanding the failure of parties interested to devise a satisfactory machine for cleaning *Bheea* fibre, this plant

Economic plants.

- L - L A A j.

*VIV.

demand for seeds and plants of the rain-tree (fig. 14) has been very extensive. This tree, a native of America, the history of whose introduction is narrated in the Garden Reports from 1878-81, is already well known in Bengal. Its timber is not valuable, but it grows rapidly, gives excellent shade, and is a useful nurse if planted with slower growing trees, to be cut down when the latter are sufficiently established. The reason for the suddenly increased demand was the statement that the rain-tree will grow on *Vsar* soil, and that such soil can thus be reclaimed. *Usar* soil is barren: what is apparently meant is that the tree will grow on soil impregnated with *reh* salts. Such soil is not necessarily infertile, though without special treatment it may not afford crops except during the rains. The effects of the presence of trees may easily explain the absence of efflorescence of the *reh* salts without much improvement in the nature of the soil; nor would it be surprising to find that after a series of years of rain-tree cultivation analysis of the soil showed little change. But the cultivation of the tree is simple, and must increase the amenity of such districts; while its profuse crop of sweet pulpy pods, which cattle greedily eat, ripening as it does in April and May, supplies a valuable fodder when usually fodder is most scarce. Mahogany and other economic trees and plants were propagated and distributed to the fullest extent of which the garden is capable. A quantity of a special kind of wheat which grows in Mexico at an elevation of 11,000 feet was sent by the Secretary of State for India for experimental cultivation in Bengal. This was sent to Sikkim. It was received in March 1887, and had to be kept till October, the proper season for sowing. When it was sown unfortunately none of the seed germinated. In April 1887 a consignment of *Eragrostia Abyssinica*, or Teff, was also sent by the Secretary of State for India for experimental sowing. This grain is a native of Abyssinia at an elevation of 6,000 feet.

It was sown both in Chota Nagpore and in the Sonthal Pergunnahs, but has not been successful in either locality.

3. The Herbarium was considerably enriched during the year. A set of plants of the large natural order *Euphorbiaceae*, which ^{Herbarium} had been placed at the disposal of Sir J. D. Hooker while describing that family for the *Flora of British India*, has been returned by the author. Each sheet is named by the author's own hand, its value as a type specimen being thus rendered priceless. From Kew the Director, Mr. Thiselton Dyer, C.M.O., has sent many valuable specimens; from St. Petersburg Dr. Regel and Mr. Maximowicz sent some valuable specimens which had been particularly asked for; Dr. Garcke of Berlin showed the same courtesy regarding some types which do not exist elsewhere; a beautiful set of Austro-Hungarian plants was presented by Dr. Kerner of Vienna; these, with a named collection from Mr. Medley-Wood of Natal and some critical specimens from Baron Von Miiller of Melbourne, complete the extra-Asian contributions. Among Indian additions the chief place is due to the large and beautiful collection of rarities from Burma and the Shan Hills sent by General H. Collett, C.B. There were also received a fine collection from the Sikkim-Nepal frontier made by a Bhootea employed by Mr. Pantling, and an equally fine one made by a garden collector in the Ghittagong Hill Tracts. Many rare things were also sent by Mr. G. Mann from Assam, Khasia, and Sylhet; Mr. J. F. Duthie of Saharanpur contributed a large number of named North-West Himalayan plants, and Major Sedgwick, B.E., a few interesting specimens from Kashmir.

4. Perhaps the most notable event of the year has been the transference of the correspondence of Dr. Wallich, Superintendent here between 1817—46, from the Library of the Royal Gardens at Kew to this Library, it constitutes 33 large volumes, and extends from 1794—1849. Some less valuable, but still highly interesting, botanical papers relating to Bengal and Assam accompanied the Wallichian correspondence. For the whole we are indebted to the good will and liberality of the distinguished Director of Kew, Mr. Thiselton Dyer, C.M.G., F.R.S.

5. The interchange and distribution department was particularly active. More plants were distributed than in any former year. This was in great measure, due to the impetus given to roadside planting by the enlightened action of the Government of Bengal in the Department of Agriculture. Of plants 11,966 were received, against 67,854 given out. Of seeds 773 packets were received, against 2,714 given out. The names of all donors and recipients appear in the appendices to the report.

6. The Lloyd Botanic Garden at Darjeeling was under the charge of Mr. W. Kennedy. The ravages of potato-disease in Sikkim and the Khasia Hills have given a shock to the introduction of English tubers recommended in former reports. The improvement of quality noticed in 1885-86 has not continued. In 1886-87 it was found that English seed generally had turned out waxy and tasteless. The deterioration in quality, in all probability due to altered climatic conditions, has been accompanied by impaired resisting power, and they have fallen a prey to disease. Without raising any question as to the source of the disease, which those interested in introducing English seed not unnaturally declare to have previously existed in India, or at least deny having introduced with English seed, the fact remains that English tubers are particularly liable to be attacked. It seems desirable that seed from Malta, Australia, or elsewhere, where the conditions of growth differ less widely from those in the Indian hills, be imported rather than English ones.

7. The budget allotments of both Calcutta and Darjeeling gardens were spent in full. At Calcutta Rs. 784-11-6 were realised from the sale of surplus plants, or Rs. 615-4-6 below the amount estimated, and at Darjeeling garden produce brought in a revenue of Rs. 961-12—>an excess of Rs. 661-12 over the amount estimated.

8. Dr. King was absent on privilege leave from 27th June to 20th September 1887, and his duties during the interval were undertaken by me in addition to my own as Curator of the Herbarium. Mr. H. Bahr was Curator of the garden during the year; Mr. W. Kennedy, as already stated, held charge of the Darjeeling garden; and Mr. William McHardy was Assistant Curator at Calcutta.

9. The usual appendices, four in number, are attached.

APPENDIX I.

Statement showing plants received from 1st April 1887 to 31st March 1888.

FROM WHOM RECEIVED.	Wardian cases.	Boxes.	Number of plants.
His Honour the Lieutenant-Governor	1
Government House Garden, Calcutta	10
Royal Garden, Kew, London	1	2	179
Botanic Garden, Durban, Natal	1	19
Ditto, Hong-Kong	3	.....	35
Ditto, Singapore	1	2	443
Ditto, George Town, Demerara	2	.....	96
Ditto, Mauritius	1
Ditto, Ootacamund	122
Ditto, Saharanpur	1	12
Ditto, Darjeeling	9	185
Agri-Horticultural Society, Calcutta...	298
Ditto, Rangoon...	1	97
Zoological Garden, Calcutta	176
Eden Garden, ditto	21
Public Garden, Allahabad	7	129
Victoria Garden, Bombay	3	.....	89
W. Bull, Esq., London	1	.....	68
Earl of Annesley, Ireland	2	.....	24
Mrs. S. T. Apoor, Garden Beach	269
H. G. Batten, Esq.	121
W. G. Bartlett, Esq., Calcutta	72
J. D. Beglar, Esq., Ghogda	36
J. Comelina, Esq., Calcutta	4
Major Cooke, Eangoon	3
C. Creagh, Esq., Assistant Resident, Laroot	4	.....	150
Lieut. F. O. Colomb, Shillong	15
Brigadier-General H. Collett, Upper Burma	2
Dr. A. Eteson, M.D., Khasia Hills	6
G. Barton Groves, Esq., Eangoon	4	254
J. H. Gilbert, Esq., ditto	3	345
A. O. Hume, Esq., Simla	1	21
H. C. Johnston, Esq., Singapore	5	1	189
S. J. Kilby, Esq., Calcutta	33
J. L. Lister, Esq., Kalimpong	2	46
Colonel Laughton, Mandalay	1	3
Rev. W. Kiefel, Hazaribagh	156
Dr. S. C. Mackenzie, M.D., Calcutta	3
G. Mann, Esq., Shillong	13	1,243
A. J. Mein, Esq., ditto	14
E. H. Man* Esq., Andamans	3	1	186
O. Maries, Esq., Durbhunga Baj Gurdm	4	161
C. Nickels, Esq., Jaunpuf	1	2
J. Orr, Esq.	18
Colonel M. C. Perreau, Calcutta	39
P. Playfair, Esq., Alipore	4
B. Pantung, Esq., Mungpoo	7	800
G. MoD. Peohe, Esq., Moulmein	2	450
3 Parks, Esq., Kalimpong	13	869
Mrs. H. S. Renolds,	1	7
A. Simeon, Esq., Calcutta	2
Captain Sanders, S.S. JRajputana	2	13
Collected by the Superintendent in Darjeeling and Bombay	93
Ditto Assistant Curator in Mungpoo	3	217
Ditto Mr. J. C. Prazer, Plant Collector, Burma.	11	3,524
Ditto fiadul Khan, Plant Collector, Ohittagong	11
Babu Prosonno Coomar Banerjee, Boy Bahadoor, Calcutta	110
P. C. Sein, Seebpore	5
S. P. Chatterjee, Calcutta	390
J.C.Biswas, ditto	1
Haree Malee, Nurseryman, Manioktollah	25
Bought at auction	1
Unknown donor	48
Total	25	93	11,966

APPENDIX H.

Statement showing plants sent out from 1st April 1887 to 31st March 1888.

TO WHOM SENT.	Wardian cases.	Boxes.	Number of plants.
His Honour the Lieutenant-Governor	29
Government House Garden, Calcutta...	282
Boyal Garden, Kew, London	3	4	333
„ Botanic Garden, Peradeniya, Ceylon	2	139
Botanic Garden, Hong-Kong	1	.....	22
Ditto, George Town, Demerara	2	.....	60
Ditto, Singapore	1	.....	184
Ditto, Edinburgh	1	67
Ditto, Cambridge	1	49
Ditto, Saharanpur	11	411
Lloyd Botanic Garden, Darjeeling	2	2	99
Government Garden, Ootacamund	1	34
Ditto of Mauritius	4	.....	141
Compagnie Continental d'Horticulture, Gand, Belgium	1	114
Eden Garden, Calcutta	20
Zoological Garden, Alipore	139
Horticultural Garden, Luoknow	3	44
Agri-Horticultural Garden, Lahore	12	281
Ditto Society's Garden, Calcutta	144
Ditto ditto, Rangoon	1	164
Ditto ditto, Madras	1	14
Publio Garden, Bhagulpore	2	80
Ditto, Allahabad	8	122
Victoria Garden, Bombay	4	1	162
Bambagh Garden, Amritsar	1	15
William Bull, Esq., F.L.S., Chelsea, London	2	.....	100
Earl of Annesley, Ireland	2	.....	61
General B. Cadell, London	1	72
H. S. Tadman, Esq., Hull	1	24
Thomson, Esq., London	1	61
B. M. Bedhead, Esq.	1	1	101
Lady Bradford	1	133
Mrs. Cochrane	1	49
Assistant Conservator of Forests, Assam	2	40
Ditto Superintendent of Forests, Penang	1	.....	40
Director of Land Records and Agriculture, Cawnpore, North- Western Provinces.	3	75
Commissioner of Ajmere	1	20
Deputy Comissioner, Dhubri	5	94
Ditto, Ludhiana	2	50
Officiating Deputy Commissioner, Dumka	18	495
Subdivisional Officer, Feni	28
Ditto ditto, Tajpur	6	75
Ditto Canal Officer, Koath	6	125
Collector of Bhagulpore	1	25
Magistrate and Collector, Chittagong	18	277
Magistrate, 24-Pergunnahs, Alipore	1,005
Officiating Magistrate, Noakhally	495
Cantonment Magistrate, Barraokpore	100
Chairman, District Board, MoDghyr	23	1,000
Ditto, ditto ditto, Bogra	2	60
Ditto, ditto ditto, Pooree	7	175
Ditto, Local ditto, Purneah	1	11
Ditto, ditto ditto, Behar	10	210
Ditto, Branch Boad Committee, Tangail	210
Ditto, Bogra Municipality	6	160
Vice-Chairman, Dinagepore Municipality	2	35
Secretary, Howrah Municipality	14
Ditto, Municipal Commissioners, Calcutta	130
Bevelgunge Municipality	9	185
Chupra ditto	8	176
Secretary, District Board, Sarun	10	250
Ditto, ditto, Midnapore	400

APPENDIX II^a continued.

TO WHOM SENT.	Wardian cases.	Boxes.	Number of plants.
District Engineer, Bhagulpore District Board, Sultangunge	3	62
Ditto, ditto, Ghogha	5	100
Ditto, ditto, Bhagulpore	6	125
Ditto, Khoolna	8	140
Ditto, Noakhally	14
Ditto, Bhagulpore	8	74
Ditto, Hazaribagh	7	150
Ditto, Dacca	21	400
Ditto, Koad Cess Committee, Mymensing	15	400
Ditto, ditto, Lohardugga	10	260
Ditto, Chupra	1	14
Executive Engineer, Dacca Division	5	105
Sub-Overseer, Serajgunge	2	100
Ditto, Pubna	5	250
Ditto, Sara	4	200
Sewan Local Board	9	300
Ohupra ditto	11	235
Superintendent, Gunpowder Factory, Ishapur	572
Ditto, Gun Carriage do., Madras	1	.....	26
Ditto, Foundry and Shell Factory, Cossipore	392
Ditto, Assam Company, Limited	2	50
Ditto, Presidency Jail, Calcutta	3	1,956
Ditto, Jail, Alipore	463
Ditto, do., Mymensing	3	55
Ditto, do., Hooghly	520
Ditto, do., Nuddea	9	179
Ditto, do., Midnapore	350
Ditto, do., Burdwan	200
Ditto, Central Jail, Dacca	2	50
Ditto, ditto, Buxar	6	7a
Ditto, Burrakar Iron Works	3	75
Ditto, Water-Works, Singapore	10	.....	225
Manager, Baron's Tea Estate, Julpigoree	2	50
Ditto, Planters' Stores and Agency Company, Limited, Calcutta.	12
Manager, Jeypur Government Eshmahals, Jeypur Hat	11	235
Ditto, Government Estates, Jeypur	1	10
Assistant Manager, Hutwa Raj	2	14
Reformatory School, Hazaribagh	6	64
Zilla School, Bogra	1	24
La Martiniere School, Calcutta	24
C. M. S. Boys' Boarding School, Calcutta	376
Pratt School, Calcutta	100
Campbell Medical School, Calcutta	21
European Orphanage.	100
London Mission, Bhowanipore	222
Church of England Zenana Mission, Calcutta	272
Ditto Mission House, Bhagulpore	5	116
Ditto db. Society, Calcutta	864
Principal, Hooghly College	103
: Ditto, Government Engineering College, Seebpore	18
St. Xavier's College, Calcutta	200
Presidency ditto, ditto	16
Hawrah Hospital	260
Station ditto, Barraokpore	5	# 755
Medical College, Calcutta	2,021
Presidency Hospital	2,000
Soldiers' Quarters, Fort William, Calcutta	500
East Indian Railway	1,350
Eastern Bengal State Railway	3,300
District Traffic Superintendent, Tundla	5	96
Hottrah Police Station
I.C.G. Dockyard, Kidderpore	36
Bazar of the little Sisters of the Poor	24
Hon'ble O. P. L. Macaulay, Calcutta...	a

APPENDIX U—continued.

TO WHOM SBVT.				Wardian*	Boxes.	Number of plants.
Hon'ble Justice Norris, Calcutta	...	...	...	...	...	40
" C. B. Garrett, ditto	...	...	...	...	...	399
" W. S. Whiteside, Madras	...	...	...	...	...	17
Bishop Parker, East Africa	...	...	...	1	...	30*
Bey. VT. Medlycott, Ferozepore	...	...	...	...	2	48
" Er. J. Dumont, S.J., Banchee	...	...	...	...	1	. 8
" H. P. Boerresen, Rampore Haut	...	...	...	...	19	8,052
" T. Bunokholdt, ditto	...	...	...	...	2	48
E. T. Atkinson, Esq., Caloutta	...	...	...	...	...	JOO
A. A. Apoar, Esq.	...	...	...	...	...	9
A. G. Apoar, Esq.	...	...	...	...	...	600
J. Ballin, Esq., Seebpore	...	...	...	...	...	3
G. W. Bartlett, Esq., Caloutta	...	...	...	...	...	85
H. G. Battén, Esq., Sandoway	...	...	...	...	2	32
J. D. Beglar Esq., Chogda	...	...	...	...	6	187
O. E. Buckland, Esq., Ballygunge	...	...	...	...	...	400
J. Cornelius, Esq., Calcutta	...	...	...	...	...	3
Mrs. Van Cutsem, Garden Reach	...	...	...	...	...	312
" Day, Caloutta	...	...	...	...	...	184
N. Denison Esq., Perak	...	...	...	1	...	35
James Duff us, Esq.	...	...	...	...	...	16
J. W. Edgar, Esq., Calcutta	...	...	...	...	...	10
J. Maofadyen, Esq., ditto	...	...	...	...	...	6
M. B. Frizone, Esq., Hazaribagh	...	...	...	...	1	240
J. Gammie, Esq., Mungpoo	...	...	...	...	1	3
G. Gellatty, Esq., Caloutta	...	...	...	...	...	100
G. Barton Groves, Esq., Rangoon	...	...	...	...	i	22
D. Hare. Esq., Caloutta	...	...	...	...	...	35
Miss E. Harwood, ditto	#	...	...	...	...	98
F. C. Hoff, Esq.	...	...	...	...	...	25
S. J. Kilby, Esq.	...	...	...	...	...	729
ndimound						root
A. E. Linton, Esq., Seebpore	...	...	...	...	...	2
Major T. H. Lloyd, B.A., Poona	...	...	...	...	6	64
Mrs. B. LyaU, Caloutta	...	...	...	...	...	2,228
J. Maokay, Esq.	...	...	...	...	...	24
J. Mackenzie, Esq., Caloutta	...	...	...	...	2	29
P. McMahon, Esq., Assam	...	...	...	...	...	46
E. H. Man, Esq., Nioobar Islands	...	...	...	3	...	91
Captain Mann, 8.8. Rewa	...	...	...	...	...	6
E. F. Mondy, Esq., Dacca	...	...	...	...	...	327
T. N. O'Connell, ESQ., Simla	...	...	...	...	1	27
B. Pantling, Esq., Mungpoo	...	...	...	...	4	71
J. C. Parker, ESQ., Caloutta	...	...	...	...	...	42
Captain Parxott, Burma	...	...	...	...	...	5
G. MoD. Peche, Esq., Moulmein	...	...	...	...	1	2
Colonel M. C. Perreau, s.a, Caloutta	...	...	...	...	...	24
J. Peter, Esq., South Sylhet	...	...	...	...	t	1,675
Dr. J. G. Piloher, F.R.C.S., Howrah	...	...	...	...	1	74
P. Playfair, Esq., Alipore	...	...	...	...	...	63
T. A. Pope, Esq., Caloutta	...	...	...	...	...	4
Mis. Bay, ditto	...	...	...	...	...	4
ELM. Read, Esq.	...	...	...	...	1	4
Dr. E. Banders, Arimungge	...	...	...	...	8	4
Dr. Scully, Oaloatta	...	...	...	...	...	9*
A. E. W. Sharpe, Era., Howrah	...	...	...	...	...	68
C. J. Sharpe, Esq., Alipore	...	...	...	...	...	80.
A. Simson, Esq., Caloutta	...	...	...	...	...	8
J. 8. Slater, Esq., Government Engineering Collage, Seebpore	...	...	...	...	...	86
Dr. L. D. Spencer, Mount Abu, Rajputana	...	...	...	...	1	172
Captain Symons, 8.8. Pekin	...	...	...	...	...	30
A. R. Warwick, Esq., Bhopal	...	...	...	...	...	12
Mrs. E. Westmaoott, Caloutta	...	...	...	...	...	832
B. E. Wright, Esq., Mhow, L.P.	...	...	...	...	1	28
						6
						80

APPENDIX II—concluded.

TO WHOM SENT.				Wardian cases.	Boxes.	Number of plants.
Messrs. Jardine, Skinner and Co., Calcutta	...	...	...	.....	.....	17,500
„ Ernsthausen and Co., ditto	...	...	...	.....	.....	8½ maunds of Bheea stems.
„ Ewing and Co., Calcutta	...	...	...	.....	.....	2,640
„ Birkmyre Brothers, ditto	...	...	...	.....	.....	1 maund of Rheea Btarka.
Nawab Ashanullah Khan Bahadoor of Dacca	...	...	...	.....	59	1,405
Rajah Bhogobutty Prossonno Boy, Calcutta	...	...	...	.....	.....	4
Babu Prossonno Coomar Banerjee, Rai Bahadoor, Calcutta	...	...	...	.....	.....	22
„ G. C. Datta, Seebpore	...	...	...	.....	.....	31
„ P. C. Sein, ditto	...	...	...	.....	.....	1,061
						and two maunds or Rheea roots.
„ B. B. Ghose, Taki	...	...	...	.....	3	467
„ S. P. Chatterjee, Calcutta	...	...	...	.....	.....	706
„ A. P. Joshi, Howrah	...	...	...	.....	.....	8
„ A. Chatterjee, Kidderpore	...	...	...	.....	.....	2
„ A. L. Paul, Seebpore	...	...	...	.....	.....	12
„ B. C. Banerjee, Bollaghar	...	...	...	.....	.....	6
„ B. P. Bose, Government Engineering College, Seebpore	...	...	...	.....	.....	8
„ O. C. Ghosh, Calcutta	...	...	...	.....	.....	2
„ C. M. Bose, Howrah	...	...	...	.....	.....	27
„ D. N. Missra, Chunnunpur	...	...	...	.....	.....	15
„ D. D. Mondal, Calcutta	...	...	...	.....	.....	3
„ G. O. Boy, Goneshpur	...	...	...	.....	.....	6
„ G. G. Dey, Government Engineering College, Seebpore	...	...	...	.....	.....	2
„ H. N. Banerjee, Calcutta	...	...	...	.....	.....	2
„ H. D. Ghosh, Oola	...	...	...	.....	.....	1
„ J. C. Biswas, Calcutta	...	...	...	.....	.....	28
„ J. N. Dass, Tangaii	...	...	...	.....	.....	2
„ K. C. Chatterjee, Tarakeshwar	...	...	...	.....	.....	45
„ M. N. Bose, Oossipore	...	...	...	.....	.....	50
„ M. Chuokerbutty, Jehanabad	...	...	...	.....	.....	2
„ N. L. Halder, Calcutta	...	...	...	.....	.....	5
„ N. C. Mitra, ditto	...	...	...	.....	.....	2
„ N. L. Chatterjee, ditto	...	...	...	.....	.....	250
„ N. M. Bhattacharjee, Seebpore	...	...	...	.....	.....	1
„ O. O. Chatterjee, Chand Bihang	...	...	...	.....	.....	34
„ P. C. Ghosh, Calcutta	...	...	...	.....	.....	65
„ P. O. Pakrasee, Pubna	...	...	...	.....	10	200
„ B. K. Boy, Goneshpur	...	...	...	.....	.....	34
„ R. T. Ghosh, Bajex Seebpore	...	...	...	.....	.....	16
„ B. Maleah, Howrah	...	...	...	.....	.....	28
„ B. Halder, Banobi	...	...	...	.....	.....	14
„ S. N. Boy, Calcutta	...	...	...	.....	.....	6
„ T. N. Banerjee, ditto	...	...	...	.....	.....	12
„ T. D. Banerjee, ditto	...	...	...	.....	.....	11
„ W. C. Sen, Kamkristopore	...	...	...	.....	.....	5
„ Sooruj Deo Narayan Sing, Balegorh	...	...	...	.....	.....	10
„ Bain Bharose, Hoshangabad	...	...	...	.....	1	12
„ Suk Deo Propad, ditto	...	...	...	.....	1	29
„ Tarinee Prosad, Bhagulpore	...	...	...	.....	6	125
M. H. 8. Mahomed Quain Aji, Khetta Sarai	...	...	...	.....	2	60
Moonshee 8. A. Ali, Hazaribagh	...	...	...	.....	2	15
„ OoUam Eaioom, Borehat	...	...	...	.....	1	3
B u m Mallee, Nunerytoan, ManioktolUh	...	...	...	.....	.....	8
Total	...	...	...	89	629	67,854

APPENDIX HI.

Statement of seeds received from 1st April 1887 to 31st March 1888.

From whom received.	Number of parcels or packets.
W. T. Thiselton Dyer, Esq., F.R.S., C.M.G., Director, Royal Garden, Kew, London ...	12
Dr. Begel, Imperial Garden, St. Petersburg, Russia ...	136
Botanic Garden, Jamaica... ..	14
Ditto, Demerara	10
Ditto, Hong-Kong	1
Ditto, Singapore	2
Ditto, Trinidad	10
Ditto, Saharanpur	31
Sir Ferdinand Yon Müller, F.R.S., Melbourne, Australia ...	11
Director, Botanic and Domain Gardens, Melbourne ...	81
M. le Directeur du Museum d'Histoire Naturelle, Paris, France	2
Messrs. Beasoner Brothers, Manatee, Florida, U.S.A. ...	119
G. Wilson, Esq., Heatherbank, Weybridge Heath, near London ...	7
Max Leichtlin, Esq., Baden-Baden, Russia	17
Sig. O. Beccari, B. Museo via Bomana, Florence, Italy ...	1
N. Gantlay Esq., Forest Department, Straits Settlements ...	1
William Scott, Esq., Royal Gardens, Mauritius	8
Superintendent, Agri-Horticultural Society's Garden, Madras	2
Superintendent, Horticultural Gardens, Lucknow, Oudh ...	45
Ditto, ditto, Lahore	18
Captain Cooke, S.S. Nowshera ... # ...	1
Brigadier-General H. Collet, C.B., Meiktila, Burma ...	7
Rev. A. Campbell, Jamtara	1
Walter Campbell, Esq., Hazaribagh	1
J. Gammie, Esq., Mungpoo	11
J. L. Lister, Esq., Kalimpong	6
B. Pantling, Esq., Mungpoo	43
W. A. Kennedy, Esq., Darjeeling	128
Dr. D. D. Cunningham, Calcutta	1
Secretary, Agri-Horticultural Society of India, Calcutta ...	1
Captain A. W. Stiffe, Indian Marine, Port Officer, Calcutta ...	1
H. J. Batten, Esq.	1
Badul Khan, Plant Collector	39
Babu P. K. Banerjee, Bar Bahadur, Calcutta	1
„ Bishumbhur Ghosh, Taki	1
„ Bam Ch. Boy Chowdhuny, Seebpore	1
Unknown party	1
Total	773

APPENDIX IV.

Statement showing seeds distributed from the Royal Botanic Garden during the year 1887-88.

To whom sent.	Number of parcels or packets.
W. T. Thiselton Dyer, Esq., F.B.B., C.M.G., Director, Royal Garden, Kew, London ...	199
6ir J. D. Hooker, K.C.S.I., C.B., F.R.S., etc., Sunningdale <i>vid</i> Arcott, near London ...	12
D. Morris, Esq., Royal Garden, Kew, London ...	274
Dr. Regel, Imperial Garden, St. Petersburg, Russia ...	16
Botanic Garden, Edinburgh ...	3
Ditto, Cambridge ...	4
Ditto, Hobart Town, Tasmania ...	1
Ditto, Brisbane, Queensland ...	3
Ditto, Buitenzorg, Java	10
Ditto, Hong-Kong ...	5
Ditto, Singapore ...	6
Ditto, Peradeniya, Geylon ...	13
Ditto, Saharanpur ...	42
Ditto, Darjeeling ...	170
M. J. Linden, le Directeur, Coiffpagnie d'Horticulture, Gand, Belgium ...	8
Herr Max Leiohtlin, Botanique Hortioole, Baden-Baden, Germany ...	95
Secretary to the Acclimatization Society, Brisbane, Queensland ...	3
Ditto, Agri-Horticultural Society of Burma, Rangoon ...	1
Ditto, ditto ditto, Madras ...	11
Ditto, ditto ditto, India, Calcutta ...	16
Ditto to the Chief Commissioner, Uppér Burma, Mandalay ...	14
Ditto, Rangoon Municipality, Rangoon ...	2
Chief Secretary, Rangoon ...	1
Colonial Secretary, Mauritius ...	79
Superintendent, Horticultural Garden, Luoknow, Oudh ...	27
Ditto, Agri-Horticultural Garden, Lahore ...	1
Ditto, Cantonment Garden, Rangoon ...	4
Ditto, of Jail, Jessore, Bengal ...	7
Ditto, Burrakur Iron Works, Burrakur... ..	12
William Bull, Esq., F L.S., Chelsea ...	1
Messrs. James Yeitoh and Sons, Chelsea ...	3
„ Haage tad Schmidt, Erfurt ...	14
„ Clephane, Brigend House, Scotland ...	1
„ Brown Shipley and Co., Liverpool ...	17
„ Dammann and Co., San Giovanni Teduoioia, Italia ...	1
„ Stanley Prioce and Co., Sudder Street, Calcutta ...	6
Sir Ferdinand Von Miiller, F.R.S., University, Melbourne ...	17
Sir Alexander Arbuthnot, K.C.S.I., London ...	28
Sir W. Bowman ...	13
Major-General H. Tottenham, Tasmania ...	3
W. H. Head, Esq., Horticultural Department, Crystal Palace, London ...	40
Dr. M. Foster, F.R.S., etc, Shelford, Cambridge, England ...	59
6. F. Wilson, Esq., Heatherbank, Weybridge Heath, London ...	18
Alexander Forbes, Esq., Aberdeen ...	16
A. Thomson, Esq., ditto ...	1
Surgeon-General C. D. Madden, Sommerset Buildings, Calcutta ...	12
Deputy Surgeon-General N. Catell, Cork, Ireland ...	31
Right Hoifble the Earl of Annesley, Castlewellan, Ireland ...	3
A/Sprenger, Esq., Exooutive Engineer, Switzerland ...	1
Dr. J. Campbell Brown, Liverpool ...	26
James Inglw, Esq., Sydney, Australia ...	12
Well. Ed. Herr Dr. Burok, Sland's Plantentuin, Buitenzoig, Java ...	226
B. D. Hoyt, Esq., Proprietor, Bay View Nurseries, Florida, U.8.A. ...	54
P. W. Beasoner, Esq., Royal Palm Nurseries, Manatee, Fla., -U.S., America ...	1
Deputy Commissioner, Chindwin ...	1
Ditto, Muzaffargarh ...	1
Ditto, in charge of Estates, Sultanpur ...	

APPENDIX IV—continued.

To whom sent.	Number or parcels or packets.
Conservator of Forests, Sandwich Islands ...	2
Ditto, Northern Circle, Ootaoamund ...	1
Deputy Conservator of Forests, Saugor ...	1
Ditto, * Chota Nagpore Division, Banchi ...	1
Ditto, Orissa Division, Cuttaok ...	1
Ditto, Akola ...	a
Ditto, Julpigoree Division, Baksa Duar ...	1
Officiating Deputy Conservator of Forests, Chittagong Division, Bangamati ...	1
Acting Conservator of Forests, Northern Circle, Triplicane ...	-3
Assistant Superintendent of Forests^ Malacca ...	i
„ Conservator of Forests, Ajmere, Merwara ...	27.
District Forest Officer, Nilambar, Malabar district ...	1
Director of Settlements to Rev. Records Pl., Lahore ...	1
Acting Director of Agriculture, Bombay ...	z
C. C. Bush, Esq, Nazira ... *	40
G. Marshall Woodrow, Esq., College of Soience, Poona ...	1
Mrs Hogg, Simla ...	24
George Watt, ESQ., M.B., C.I.E, on special duty with Government of India, Department of Revenue and Agriculture, Simla, Punjab ...	27
T. Curtis, Esq., Manager, Colgong Indigo Concern, Colgong, Bhagulpore ...	2
W C. de Morgans, Esq., Executive Engineer, Public Works * Department, Chettipett, vid Niddavole, W* Godavari- ...	2
Mrs. Shaw* Kanti, Mozufferpore, Tirhoot State Railway ...	1
The Dial proprietor, Dayal Bagh, Huzrut Gunge, Lucknow ...	1
Cojonel Robertson, 44 G.L.S., Manipur, vid Cachar, Assam ...	27
E. Learight, Esq., Subdivisional Canal Officer, Koath, vid Dumraon, Shahabad ...	2
H. W. Apperley, Esq., Dhokraba, Rajghat, Chumparun, Tir- hoot State Railway ...	11
R. A. Townsend, Esq, Sibi, Beluohirtan ...	13
E. B. Brown, Esq., Principal, Medical College, LaKore, Punjab ...	26
C. Maries, Esq., Morar, Gwalior, C.I. ...	39
W. R. Bright, Esq., Offg. Collector of Chumparun, Motiharee, Behar ...	2
J. Cameron, Esq., Lall Bagh, Bangalore, Madras ...	1
M. R. Weld, Esq., Dents Gardens, Madras ...	24
George Thomas, Esq., Monghyr, Behar ^ ...	2
The District Engineer, Bhagulpore ...	.3
W. A. Inglis, Esq., C.E., Executive Engineer, Arrah, Behar ..	j
The Collector of Monghyr, Behar ...	2
William Campbell, Esq., Kurhurie Factory, md Batalia (MozuSerpore), Tirhoot ..	1
The Dewan of Cutoh, Bhuj, Bombay ...	2
Ditto of Sahib Joonojudh State, Eathiawar... ..	2
R. S. Bronton, Esq, Municipal Office, Bombay ...	1
G. Carstensea, Esq, Superintendent, Victoria Garden, Bombay ...	1
P. S. P. Lily, Esq., Administrator, Porbander State, Kathiawar, ^ Bombay ...	1
W. Leonard, Esq., Superintendent of Jail, Bhagulpore, Behar ...	28
The Medical Officer in charge, Station Hospital, Dinagepore, • Shahabad ...	73
The Officer in medical charge^ Allahabad Station Hospital, Allahabad... ..	43
M. H. S. Mahomed Quain Ali, Rais and Vakil, High Court, N.W.P., Khetri, Sorai, O. & B. Eailway Station ...	4
The Executive Engineer, Aligarh Division, Ganges Canal, Aligarh ...	j
Bev. H. B. Boerresen, Ebenezer Mission Station, vid Bampore Hfft, Beerbhoom ...	1
W. B. Lowrie, Esq., Officiating Superintendent, Kurnafuli Asso- ciation Ld., Hulda Valley, Chittagong ... *	1
B. H. Beilly, Esq., 9, Canning Road, Allahabad ...	2
C. A. White, Esq., Assistant Engineer, Naeriganj, Sasseram ...	1

APPENDIX IN—concluded.

To whom sent.	Number of parcels or packets.
W. Kilby, Esq., N.B.S. Railway, Rungpore ...	1
F. R. S. Collier, Esq., Chairman, District Board, Rungore ...	5
J. Gammie, Esq., Resident Manager, Government Cinchona Plantation, Mungpoo ...	6
J. H. Ister, Esq., Kalimpong, Darjeeling ...	3
R. F. Martin, Esq., Manager, Lakhibaria Tea Estate, Dhupguri, Julpigoree ...	1
C. P. Smith, Esq., Shikohabad, Mainpuri, Lower Ganges Canal ...	2
Rev. A. Campbell, Pokhuria, Govindpore, Manbhoom ...	1
J. F. Duthie, Esq., Director, Botanical Department, Northern India, Saharanpur ...	1
H. N. Read, Esq., Bengal Club, Calcutta ...	195
Lady Helen Blackwood, Government House, Calcutta ...	00
The Ordnance Officer, in charge of Arsenal, Fort William, Calcutta ...	Id
S. J. Kilby, Esq., Calcutta ...	3
Colonel M. Perreanu ditto ...	5
H. Bahr, Esq., Curator, Royal Botanic Garden ...	47
M. Em. Labussiere, Agent, Compagnie des Moasageries Mari- times, Calcutta ...	107
Babu Goluck Chander Mookerjee, Sub-Overseer, Nazirgunge	1
„ Bama Chunder Peramanlk, Assistant Engineer, Public Works Department, Nazirgunge ...	2
„ Bishumbhur Lall, Mirzapur, North-Western Provinces	80
„ Gopal Chandra Dutta, Head Clerk, Royal Bot.inio Gardens, Calcutta ...	16
„ Abinash Chander Sen, Seebpore ...	1
„ Devendranath Bosu, Calcutta ...	20
„ Jadub Chunder Biswas, Calcutta ...	14
„ Netto Gopal Chatterjee, Pikeparah Nursery, Calcutta ...	10
„ P. Ghosh, Esq., Caloutta ...	1
„ Protap Narain Singh, Deputy Magistrate and Deputy Collector, Bankoora ...	2
„ Protap Chander Dey, Caloutta ..	1
„ P. C. Sein, Overseer, Royal Botanic Garden, Seebpore	2
„ S. P. Chatterjee, Caloutta ...	1
„ Thakur Dass Banerjee, Superintendent, Government House Gurden, Caloutta ...	1
Total ...	2,71.4

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN FOR THE
YEAR 1888-89.

No. 11G, dated Seebpore, the 14th May 1889.

From—BRIGADE-SURGEON GEORGE KINO, M.B., Superintendent, Royal Botanic
Garden, Calcutta,

To—The Secretary to the Government of Bengal, Financial Department.

I HAVE the honour herewith to submit the One Hundred and Second
Annual Report of the Royal Botanic Garden.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN, CALCUTTA, FOR THE
YEAR 1888-89.

THE chief improvement effected within the garden during the year was the extension and completion of the Palm-house. This house—an octagon with a central dome—was originally designed in 1882. But as the carrying out of the entire plan at that time would have provided more space than was actually necessary only the central part was then built. The collection of plants cultivated in the garden having increased enormously during the past few years, the house has now been extended to the full size originally contemplated. The octagonal form has been preserved, and the length of each of the eight sides is now 85 feet, while the diameter of the whole is 210 feet. In its complete form it forms a very large conservatory indeed, and when the plants now being put out in it have had time to establish themselves, the effect inside will, I think, be very fine. Externally no house with such a large area of thatched roof can possibly look very well. But trees are to be planted in its neighbourhood, so as to break the view of the great expanse of thatch as much as possible. Various minor improvements in the way of road-making and mending have been effected within the garden. But the chief improvement in the way of communications which I have to record is the beginning made by the Public Works Department towards the continuation of the riverside road from the Shalimar Point to one of the garden gates. The Port Commissioners some years ago carried the road as far as Shalimar; but there it ended in a *cut de sac*. Now it is, being carried, close by the brink of the river, down to the garden. This road, when completed, will form a magnificent breezy drive, and should tend considerably to augment the number of visitors. The accessibility of the garden has been still further increased by the erection, at the main entrance from the river, of a floating landing stage and gangway. These will make it much easier for steam launches and boats to land their passengers. The boundary disputes recorded in last year's report have all been practically settled, but the boundary has not yet been marked off by anything better than stone pillars, and a wall or stout fence would be certainly a great improvement, could sufficient funds be spared.

2. *Economic Plants*.—Nothing very special in the department has engaged attention during the year. The usual demands for Mahogany, fruit trees, Rain tree, Rhea and other useful plants have been met as far as possible.

3. *Herbarium*.—The collection of dried plants has received considerable accessions during the year. From garden collectors sent to Jongri (in Sikkim) and Maymyo (in Upper Burmah) very fair collections were received; while I have to thank General H. Collett, C.B., for a large and most interesting collection from the Shan hills; Mr. S. Peal for a collection from the Naga Hills, and Mr. Talbot for a collection from the forests of Ganara. To the authorities of the Royal Garden at Kew we are as usual indebted for many gifts. Chief among these during the past year, I have to mention the third set of Mr. C.B. Clarke's extensive collections in the Eastern Frontier countries, made during his last visit to India. Mr. Clarke was an indefatigable collector, and as each specimen is accompanied by a note written by his own hand, this contribution is of exceptional botanical interest and value. From Kew were also received some Griffithian, a few Wallichian specimens, some Burmese plants, and a large

APPENDIX I.

Statement showing plants received from 1st April 1888 to 31st March 1889.

FROM WHOM RECEIVED.	Wardian cases.	Boies.	Number of plants.
Royal Garden, Kew, London	3	1	162
„ Botanic Garden, Peradeniya, Ceylon	1	.....	46
Botanic Garden, Hong-Kong	1	.....	18
Ditto, Saharanpur ... ..	.....	.....7	168
Ditto, Darjeeling ... ..	.....	3	164
Agri-Horticultural Society, Calcutta ... ..	.....	.....	41
Horticultural Garden, Luoknow ... .. *	.....	10	772
Victoria Garden, Bombay ... ..	.....2	.....	96
Conservator of Forests, Madras	2	.....	53
Superintendent of Forests, Penang	2	.....2	130
Director of Forest School, Dehra-Dun, North-Western Provinces	tat* ..	2	48
Deputy Postmaster-General, Luoknow ... ..	.....	2	692
His Graoe the Most Beverend Archbishop Goethals ... ..	.....	.....	2
G. W. Baxtlett, Esq., Calcutta ... ..	.....	.....	164
Miss Barron ... ..	.....	.....	16
Lieutenant F. C. Colomb, Shillong ... ..	.....	1	36
Brigadier-General H. CoUett, C.B., Upper Burma ... ..	.....	1	15
W. Craw, Esq., Ranikhet ... ..	.....	.....	96
Dr. D. D Cunningham, F R S., Calcutta ... ..	.....	.....	467
G. M. Currie, Esq., Howrah ... ..	.....	.....	19
J. Gammie, Esq., Mungpoo ... ..	.....	13	227
G. Barton Groves, Esq. ... ..	.....2	4	350
A. O. Hume, Esq, C.B., Simla ... ..	.....	2	48
H. C. Johnston, Esq., Singapore ... ..	.....3	.....	189
J. L. Lister, Esq., Kaligipong ... ..	.....	4	152
G. H. T. Mayer, Esq., Allahabad ... ..	.....	2	18
E. H. Man, Esq., Andamans ... ..	.....2	.....	180
G. Mann, Esq., Shillong ... ..	.....	.....1	74
T. D. Osmer, Esq. ... ..	.....	.....	19
J. Parkes, Esq., Kalimpong ... ..	.....	9	712
G. MoD. Peche, Esq., Moulmein ... ..	.....	6	412
Colonel M. O. Perreau, Calcutta ... ..	.....	.....	201
Dr. T. J. Bo well, Singapore	- 1	.....	42
A. Simson, Esq., Calcutta ... ..	.....	.....	7
W. Stalkartt, Esq.. Ghoossery ... ..	.....	1	327
Dr. O. J. H. Warden ... ..	.....	1	1
Collected by Badal Khan, Plant Collector, Burma ... ..	.....	5	1,524
Babu Bai Prosonno Coomar Banerjee, Bahadoor, Calcutta ... ..	.....	.....	74
ti S. P. Chatterjee, Calcutta ... ..	.....	.....	1,324
Mr.J. O. Prazer, ditto ... ..	.....	.....	80
t. T. Nathan, Esq. ... ..	.....	.....	289
Haree Malee, Nurseryman, Manioktollah ... ..	.....	.....	250
Total	19	77	9,705

quantity of miscellaneous flowering and cryptogamic plants. From Mr. Wray, of the Perak Museum, there were received six boxes of specimens from that rich botanical country. Mr. Curtis, of the Forest Department of the Straits Settlements, contributed a set of the Dipterocarps of Fenang; while to Mr. Duthie, of the Saharanpur Botanic Garden, we are indebted for some interesting specimens from the North-Western Himalaya. But the operations in the Herbarium were not confined to receiving, for during the year considerable numbers of named specimens were issued to the Herbaria at Kew, the British Museum, Cambridge, St. Petersburg, Paris, Berlin, Leiden, Florence, Saharanpur, Madras, Buitenzorg (Java), Singapore, Perak, Penang, and to the collections of M. de Candolle of Geneva and Mr. J. Sykes Gamble of the Madras Forest Department.

4. *Library*.—The library is indebted to Sir Joseph Hooker, late of Kew, for several volumes, and for many pamphlets presented from his private collection; and from his successor at Kew, Mr. W. T. Thiselton Dyer, F.R.S., I have to acknowledge many valuable books which were in duplicate in the library at Kew. During the year the second part of the *Annals of the Garden* was issued. This contains the completion of the Superintendent's monograph of the genus *Ficus*. A fresh part, treating of the Indo-Malayan species of Oaks and Chestnuts, is far advanced and will be published in a few months.

5. As the attached distribution lists will show, there was considerable activity in the nursery and seed departments, no fewer than 31,183 plants and 2,075 packets of seeds having been issued to municipalities, road committees, managers of station gardens, and private persons. These figures fall short of those of 1887-88, the returns of which were swelled by the issue of a quite unprecedented number of the plant producing the well-known Rhea fibre. In making these issues great care is taken to avoid anything like interference with private nursery enterprise.

6. For the first half of the year under review the Lloyd Botanic Garden at Darjeeling was under the charge of Mr. H. Bahr. In November Mr. Bahr resigned the service of Government, and Mr. W. A. Kennedy was put in charge. In addition to his duties as Curator of the garden, Mr. Kennedy has been very energetic in planting trees in suitable spots in various parts of the station. This is a work of some importance, for Darjeeling is at present one of the barest of the Himalayan stations, and, viewed from a distance, it offers a sorry contrast to its superb surroundings, there being little to be seen within municipal limits, except corrugated iron sheeting and scrub jungle.

7. Both at Calcutta and Darjeeling the budget allotments for the year were spent nearly in full. The joint revenue estimated from the two gardens was Rs. 1,700, the whole of which, I regret to say, was not realised, there being a deficit of Rs. 182.

8. The writer was absent on furlough from April to November, and during his absence the duties of Superintendent were most efficiently discharged by Dr. D. Prain, Curator of the Herbarium. Mr. McHardy filled the office of Curator during the whole year, and he has earned, both with Dr. Prain and myself, the character of an energetic and enthusiastic officer. Babu Gopal Chandra Datta, the head of the office establishment, and Babu Prossunno Coomar Sein have both conducted their duties most satisfactorily.

9. The usual appendices, four in number, are attached.

APPENDIX I.

Statement showing plants received from 1st April 1888 to 3rd March 1889.

FROM WHOM RECEIVED.	Wardian cases.	Boxes.	Number of plants.
Royal Garden, Kew, London	3	1	162
„ Botanic Garden, Peradeniya, Ceylon	1	.....	46
Botanic Garden, Hong-Kong	1	.....	18
Ditto, Saharanpur ... ..	.....	7	168
Ditto, Darjeeling ... ..	.....	3	164
Agri-Horticultural Society, Calcutta ... ..	.....	.....	41
Horticultural Garden, Luoknow ... ..	.....	10	772
Victoria Garden, Bombay	2	.....	96
Conservator of Forests, Madras	2	.....	53
Superintendent of Forests, Penang	2	2	130
Director of Forest School, Dehra-Dun, North-Western Provinces	.....	2	48
Deputy Postmaster-General, Luoknow ... ..	.....	2	692
His Grace the Most Reverend Archbishop Goethals ... ..	.....	.....	2
G. W. Bartlett, Esq., Calcutta ... ..	.....	.....	164
Miss Barron ... ..	.....	.....	16
Lieutenant F. C. Colomb, Shillong ... ..	.....	1	36
Brigadier-General H. Collett, C.B., Upper Burma ... ..	.....	1	15
W. Craw, Esq., Ranikhet ... ..	.....	.....	96
Dr. D. D Cunningham, F R S., Calcutta ... ..	.....	.....	467
G. M. Currie, Esq., Howrah ... ..	.....	.....	19
J. Gammie, Esq., Mungpoo ... ..	.....	13	227
G. Barton Groves, Esq.	2	4	350
A. O. Hume, Esq., C.B., Simla ... ..	.....	2	48
H. C. Johnston, Esq., Singapore	3	...	189
J. L. Lister, Esq., Kalijnpur ... ..	.....	4	152
G. H. T. Mayer, Esq., Allahabad ... ..	.....	2	18
E. H. Man, Esq., Andamans	2	.....	180
G. Mann, Esq., Shillong ... ..	.....	1	74
T. D. Osmer, Esq. ... ..	.....	.....	19
J. Parkes, Esq., Kalimpong ... ..	.....	9	712
G. MoD. Peche, Esq., Moulmein ... ..	.....	6	412
Oolonel M. C. Perreau, Calcutta ... ..	.....	.....	201
Dr. T. J. Howell, Singapore	1	.....	42
A. Simeon, Esq., Calcutta ... ..	.....	.....	7
W. Stalkartt, Esq., Ghoosery ... ..	.....	1	327
Dr. C. J. H. Warden ... ..	.....	1	1
Collected by Badal Khan, Plant Collector, Burma ... ..	.....	5	1,524
Babu Rai Frosonno Coomar Banerjee, Bahadoor, Calcutta ... ..	.....	.....	74
ti 8. P. Chatterjee, Calcutta ... ..	.....	.....	1,324
Mr. J. O. Prazer, ditto ... ..	.....	.....	80
« T. Nathan, Esq. ... ..	.....	.....	289
Haree Malee, Nurseryman, Manioktollah ... ..	.....	.....	250
Total	19	77	9,705

APPENDIX II.

Statement showing plants sent out from 1st April 1888 to 31st March 1889.

TO WHOM SENT.	Wardian cases.	Boxes.	Number of plants.
Government House Garden, Calcutta	11
Belvedere Garden, Alipore	86
His Highness the Maharajah of Cooch Behar	32
Boyal Garden, Kew, London ...	1	15	435
Do. Botanic Garden, Peradeniya, Ceylon ...	2	...	47
Botanic Garden, Geelong, Victoria ...	1	...	157
Ditto, Saharanpur	11	375
Lloyd Botanic Garden, Darjeeling	7	278
M. Le Directeur, Jardin Botanique, Montpellier	1	91
Zoological Garden, Alipore	457
Horticultural Garden, Nagpur	" 3	39
Ditto, Luoknow	35	562
Agri-Horticultural Garden, Lahore	13	323
Ditto ditto, Calcutta	1	23
Sir George Macleay, Surrey.	18
„ W. Bowman, Do.	18
Alexander Forbes, Esq., Morkew	12
Marchioness of Londonderry	1	200
Political Agent, Bhopal	16	308
Ditto, Kotah	4	68
Conservator of Forests, Assam *	...	1	4
Superintendent of Forests, Penang ...	11	1	421
Deputy Commissioner, Dhubri	6	128
Sub*divisional Officer, Feni	2	76
Sub-divisional Officer, Baraset	182
Ditto ditto, Nowgong, Rajshahye	8	200
Magistrate and Collector, Chittagong	3	20
Officiating Magistrate, Noakholly	16	285
Cantonment Magistrate, Dum-Dum	140
Ditto ditto, Barrackpore	65
Honorary ditto, Hooghly	2	50
Chairman, District Board, Furreedpore	14	300
Ditto m ditto, Maldah	3	70
Vice-Chairman, Dinagepore Municipality	6	100
District Engineer, Dinagepore	46	1,000
Ditto, Ghogha	8	150
Ditto, Sultangunge	3	50
Ditto, Bhagalpur	12	239
Assistant Engineer, P. W. D., Cuttaok	4	77
Executive Engineer, Calcutta Workshop Division	300
Ditto, Jessore Division	10	200
Ditto, Nazirgunge	2
Superintendent, Gunpowder Factory, Ishapur	162
Ditto, Akra Brick Factory...	400
Ditto, Presidency Jail, Calcutta	500
Ditto, Central Jail, Dacca	11	190
Ditto, Jail, Chittagong	12	300
Ditto, do., Hooghly	474
Ditto, do., Monghyr	3	74
Ditto, do., Burdwan	2	48
Ditto, Water-Works, Singapore ...	3	...	76
Ditto, Ehusru-BaghlAllahabad	"1	8
Ditto, Dispensaries, Yfewnpore	1	29
Ditto, P. & O. S. N. Co., Calcutta	24
Manager, Jugcherra Tea Estate, Sylhet	13	216
Ditto, Jute Mills, Seebpore	24
Ditto, Jungpanna Tea Estate, Mahanuddy, Darjeelinir	1	30
Ditto, Star Tea Estate, Sylhet	1	200
Manager, Lullecherra Tea Estate, Sylhet	1	600
„ Jorehat State Railway, Assam	10	200
Deputy Postmaster-General, Lucknow	7	261
Librarian, Forest School, Dehra-Dun	1	1
C. M. S. Boys' Boarding School, Caloutta	372

APPENDIX *IL*—continued.

TO WHOM SENT.	Wardian cases.	Boxes.	Number of plants.
Zenana Mission, Calcutta	183
Church Committee, Maimensing	...	4	80
„ Mission House, Bhagalpur	...	5	105
General Assembly's Institution, Calcutta	4
Principal, Kishnagar College	...	6	88
„ Government Engineering College, Seebpore	2
Assistant Registrar, Calcutta University	12
Soldiers' Garden, Fort William, Calcutta	2,283
East Indian Railway	...	34	2,905
Eastern Bengal State Railway	1,558
District Traffic Superintendent, Tundla	...	1	12
Barraokpore Park	21
Sulkea Salt Golah	1,859
Bazar of the Little Sisters of the Poor	13
His Grace the Most Reverend Archbishop Goethals	11
Reverend Father C. Cesary, Jamalpur	...	6	80
„ P. T. Wilson, Budaon, North-Western Provinces	...	1	10
„ F. Rolf e, Howrah	100
„ H. P. Boerresen, Rampur Hât	...	2	30
Hon'ble O. B. Garrett, Alipore	96
C. A. B. Anderson, Esq., Calcutta	64
Mrs. Andrew	6
G. W. Bartlett, Esq., Calcutta	21
H. G. Batten, Esq., St. Albans	...	1	10
G. 8. Beatson, Esq., Calcutta	4
R. Bleehynden, Esq., ditto	6
Alfd. E. Bower, Esq., Agra Cantonment	...	4	80
Y. O. Camphoxe, Esq., Chandernagore	...	2	45
W. H. Crowe, Esq., Poona	...	2	22
Dr. D. D. Cunningham, F.B.S., Calcutta	118
W. Cuxrie, Esq., Caloutta	62
T. B. Curtis, Esq., Tukvar, Darjeeling	...	3	46
Miffa Colder	4
Ch 8. Donnithorne, Esq., Howrah	69
J. Ware Edgar, Esq., cs.i., Caloutta	93
Mr. Fitzgibbon, Government Engineering College, Seebpore...	...	1	4
„ S. Fleming, Darjeeling	...	1	6
J. L. D. Fox, Esq., Caloutta	1
Mrs. Fleming, Caloutta	7
G. Gellatly, Esq., Calcutta	50
G. Barton Groves, Esq.	...	3	160
J. Halvey, Esq., Seebpore	3L
O. Kelly, Esq., Howrah	2
Dr. Irving Rowell, Singapore	...	1	36
Mrs. Lannour, Caloutta...	48
„ Lyall, ditto	176
D. Low, Esq., Brindisi	...	1	100
O. Little, Esq., Calcutta	10
J. L. Lister, Esq., Kalimpong	...	1	26
Herbert lister, Esq., England	...	1	15
A. W. Mans, Esq., Commander, 8.S. Rewa	20
E. H. Man, Esq., Nioobar Islands	...	3	100
O. Maries, Esq., Gwalior	...	77	4,372
Dr. R. Mathew, Howrah	138
M. M. Ghose, Esq., Caloutta	...	1	21
K. F. Mondy, Esq., Dacca	...	2	429
H. Millett, Esq., Calcutta	50
Mrs. Munro ditto	36
Colonel G. Neill, ditto	2
O. Nickels, Esq., Jaunpur	...	2	9
T. N. O'ConneU, Esq., Simla	...	4	262
G. McD. Peohe, Esq., Moulmein	...	2	14
B. Pantling, Esq., Mungpoo	...	3	292
Colonel M. O. Perreau, s.c., Caloutta	185

APPENDIX II—continued.

TO WHOM SENT.	Wardian cases.	Boxes.	Number of plants.
P. Playfair, Esq., Alipore			61
J. Pratt, Esq., Midnapore		3	75
J. Eainnie, Esq., Assam		2	35
Dr. Regel, Imperial Garden, St. Petersburg		1	90
H. R. Reilly, Esq., Burdwan		10	220
P. Richards, Esq., Calcutta			130
J. Robinson, Esq., Bhagulpore		1	25
R. S. Romaine, Esq., Calcutta			8
Mrs. Ross, Seebpore			15
J. S. Slater, Esq., Seebpore	1		44
W. P. Smith, Esq., Bhagulpore		9	220
Colonel Skene, Upper Burma		1	22
W. Stalkartt, Esq., Ghoosery			179
J. A. Tomlin, Esq., Calcutta			80
Mrs. Templeton, ditto			6
„ Thomson, ditto			25
„ R. E. Twidale, ditto			15
R. L. Upton, Esq., ditto			1
A. J. Wilson, Esq., ditto			8
Charles Young, Esq., London			35
Messrs. Octavius, Steel & Co.		4	42
Babu Rai Prosonno Coomar Bane [^] ee, Bahadoor, Calcutta			4
„ G. C. Datta, Seebpore			70
„ P. C. Sein, ditto			73
„ D. N. Basu, Calcutta		1	26
„ S. P. Chatterjee			267
„ A. C. Datta			4
„ A. C. Sein, Seebpore			1
„ B. B. Gangooly, Ranaghat		1	12
„ B. L. Mookerjee, Seebpore			151
„ B. L. Sein Gupta, Calcutta			7
„ B. B. Ghose, Taki			206
„ B. C. Banerjee, Ballaghar		2	10
„ B. It Chowdhury, Calcutta			1
„ D. N. Sein Gupta, Umbica Culna			7
„ D. C. Haider, Seebpore			13
„ D. D. A. Chowdhury, Muktagacha		5	120.
„ G. C. Dey, Government Engineering College, Seebpore			1
„ G. N. S. Gupta Roy, Krishnaghur		1.	13
„ H. C. Roy, Calcutta			3
„ H. K. Gupta, Habigunge		2	40
„ J. P. Gupta, Nashipore		1	16
„ J. N. Mookerjee, Krisnaghur			2
„ J. N. Gangooly, Ariadaha			6
„ J. N. Roy, Burdwan			28
„ K. P. R. Chowdhury, Seebpore			30
„ * K. C. Palit, Calcutta			10
„ K. C. Chatterjee, Tarkeshwar		6	77
„ Li C. Dey, Maimensing			4
„ M. S. S. Gupta, Seebpore			2
„ N. L. Mookerjee, Calcutta			2
„ N. C. Shaw, Chandernagore			4
„ N. M. Bhattacharjee, Seebpore			2
„ N. N. Samonta, Burd T [^]			1
„ O. C. Banerjee, Jannai			50
„ O. C. Datta, Ramkristopore			16
„ P. Dey, Calcutta			20
„ P. C. Banerjee, Narainpore		2	23
„ P. Ghosh, Calcutta			8
„ R. K. Boy, Ganeshpore			10
„ B. B. Chowdhury, Calcutta			4
„ R. N. Mahata, ditto			15
„ R. Maleah, Howrah			14
„ S. C. Mookerjee, Mihirpore		1	8

APPENDIX II—concluded.

TO WHOM SENT.				Wardian cases.	Boxes.	Number of plants.
Babu S. K Eoy, Garia ...	..	...	...	.....	.....	7
„ S. C. Chatterjee, Seebpore ...	...	...	...	.....	.....	13
„ W. N. S. Gupta, Bamkristopore	...	...	...	.....	.....	3
„ Mohurr Sing, Dehra-Dun	...	...	...	.....	.....	2
Head Clerk, Ghoossery Mill	...	...	...	.....	.....	2
Mahammed Shah, Garden Beach	...	...	...	.....	.....	9
Moonshee Etrut Hossein, Burdwan	...	...	...	.....	2	9
M. M. Wime, Calcutta	...	...	...	.....	.....	1
Phallaram Maity, Nazirgunge	...	...	...	.....	.....	3
Issan Chundra Dass, Nurseryman, Manicktollah	...	...	...	.....	.....	35
Total ...	...	...	...	24	539	31,183

APPENDIX HI.

Statement of seeds received from 1st April 1888 to 31st March 1889.

FROM WHOM RECEIVED.				Number of parcels or packets.
W. T. Thiselton Dyer, Esq., F.R.S., C.M.G., Director, Royal Garden, Kew, London	...	...	...	325
Dr. Begel, Imperial Garden, St. Petersburg, Russia	...	...	...	105
Botanic Garden, Jamaica	...	...	...	2
Ditto, Trinidad	...	...	...	> 9
Ditto, Demerara	...	...	...	3
Ditto, Adelaide	...	...	...	56
Ditto, Melbourne	...	...	...	1
Ditto, Cambridge	...	...	...	1
Ditto, Hong-Kong	...	...	...	8
Ditto, Buitenzorg, Java	...	...	...	2
Ditto, Peradeniya, Ceylon	...	...	...	14
Ditto, Saharanpur	...	...	...	50
Ditto, Darjeeling	...	...	...	55
Ditto, Bangalore	...	...	...	12
Victoria Garden, Bombay	...	...	...	1
Baron Ferdinand Von Muller, F.R.S., Melbourne, Australia	...	...	...	28
Messrs. Beasoner Brothers, Boyal Palm Nurseries, Manatee, Florida	...	...	...	22
B. D. Hoyt, Esq., Proprietor, Bay View Nurseries, Bay View, Florida	...	...	...	24
Dr. E. Haeckel, Director du Jardin Botanique de Marseilles...	...	...	...	1
Messrs. Dammann & Co., San Giovanni, Italy	...	...	...	95
Dr. James Irving, San Bemo, Italy	...	...	...	1
Right Hon'ble the Earl of Annesley, Ireland	...	...	...	1
B. Li. Cumberland, Esq., Durban, Natal	...	...	...	1
Sir W. Bowman, F.R.S., London	...	...	...	1
C. Curtis, Esq., Forest Department, Penang*	...	...	...	5
Secretary to the Agri-Horticultural Society of India, Cal- cutta	...	...	...	3
Secretary to the Agri-Horticultural Society of India, Mad- ras	...	...	...	2
Superintendent, Horticultural Garden, Lucknow	...	...	...	1
Conservator of Forests, Ootacamund	...	...	...	1
Deputy Conservator of Forests, Chittagong Division	...	...	...	2
Commissioner of Eumau	...	...	...	1
J. Gammie, Esq., Mungpoo	...	...	...	6
B. Pantling, Esq., ditto	...	...	...	1
J. Li. Lister, Esq., Kalimpong	...	...	...	3
T. C. Anderson, Esq., Ceylon	...	...	...	1
Brigadier-General EL Collett, C.B., Upper Burma	...	...	...	1
A. F. Dowling, Esq., Hulda Valley, Chittagong	...	...	...	1
S. J. Kilby, Esq., Calcutta	...	...	...	1
G. Marshall Woodrow, Esq., Poona, Bombay	...	...	...	1
B. Hose, Esq., Lucknow	...	...	...	10
Messrs. Stanley Price & Co., Calcutta	...	...	...	58
T. H. Storey, Esq., Oodeypore, Bajputana	...	...	...	1
Bahu B. Ghosh, Taki	...	...	...	2
Badul Khan, Plant Collector	...	...	...	21
Unknown parties	...	...	...	2
Total				942

APPENDIX IV.

Statement showing seeds distributed from the Royal Botanic Garden during the year 1888-89.

TO WHOM SENT.				Number of parcels or packets.
W. T. Thiselton Dyer, Esq., *R.S., C.M.G., Director, Royal				
Garden, Kew, London	...	...	...	108
Botanic Garden, Jamaica	...	...	...	21
Ditto, Cambridge	...	...	...	1
Ditto, Brisbane, Queensland	...	...	...	3
Ditto, Buitenzorg, Java	...	...	...	24
Ditto, Hong-Kong	...	...	...	1
Ditto, Singapore	...	...	...	1
Ditto, Peradeniya, Ceylon	...	...	...	10
Ditto, Saharanpore	...	...	...	9
Ditto, Darjeeling	...	...	...	440
M. L. Linden, Directeur, Société Anonyme de Horticulture				
Internationale, Ghent	...	...	...	1
M. Crepin, Directeur du Jardin Botanique de l'Etat, Bruxelles				1
Herr Max Leiohtlin, Botanique Horticole, Baden-Baden	...			1
Secretary to the Acclimatization Society, Brisbane, Queens-				
land	...	...	...	3
Secretary to the Royal Botanic Society, Regents Park, London				1
Ditto Royal Horticultural Society, South Kensington				1
Ditto Agri-Horticultural Society of Burma, Rangoon				3
Ditto ditto ditto, Madras				4
Ditto ditto ditto, India, Calcutta				6
Ditto Municipal and Sanitary Committee, Abu, Raj-				
putana	...	...	...	1
Superintendent, Horticultural Garden, Lucknow	...			34
Ditto, Agri-Horticultural Garden, Lahore	...			14
Ditto, Empress Botanic Garden, Gharpuri, Poona	...			1
Ditto, Government Garden, Bangalore	...			3
Ditto, Victoria Garden, Bombay	...			1
Ditto of Gardens, Annandale, Simla	...			3
Ditto, Gwalior State Garden, Morar, Gwalior	...			17
Ditto, Foundry and Shell Factory, Cossipore	...			1
Ditto of Jail, Rajahmundry, Madras	...			8
Ditto, Kurnafuli Tea Association, Hulda Valley,				
Chittagong	...	...	...	5
Ditto, Kulsapore-Estate, Koppa, Bangalore	...			1
Assistant Superintendent of Forests, Malacca	...			13
Sir Alexander Arbuthnot, K.C.S.I., India Office, London	...			1
W. Armstrong, Esq., St. Lawrence, Queensland	...			1
Charles L. Badgay, Esq., Roma Downs, Roma, Queensland	...			1
Professor Balfour, F.R.S., Edinburgh, Scotland	...			1
„ Bower, University, Glasgow	...			111
William Bull, Esq., F.L.S., Chelsea	...			1
Dr. Charles, Maison Robbi, Sils Maria, Switzerland	...			95
B. L. Cumberland, Esq., Durban, Natal	...			3
M. J. Adrien Despeissin, Royal Society, Mauritius	...			1
John Gabber, Esq., Horticulturist, San Francisco, California	...			1
W. G. Head, Esq., Crystal Palace, London	...			12
R. D. Hoyt, Esq., Proprietor, Bay View Nurseries, Bay View				
Florida	...	...	...	114
J. Iriglis, Esq., Sydney, Australia	...			1
Dr. James Irving, Villa Luigi, Marsaghii, San Remo	...			84
„ Geo. King, London	...			41
D. Low, Esq., Brindisi	...			4
Baron Ferdinand Von Muller, University, Melbourne	...			3
David Prain, Esq., Fettercaim	...			18
W. A. DeSilva, Esq., Minwangoda, Ceylon	...			1
E. D. Sturtevant, Esq., New Jersey	...			13
Alexander Thomson, Esq., Aberdeen	...			1
Major-General H. Tottenham, Tasmania	...			6
Thos. C. Wilson, Esq., Socrubaya, Java	...			10
Messrs. Cooper, Madon and Company, Limited, Bombay	...			1
„ Dammann and Company, San Giovanni, Italy	...			6
„ Finlay, Muir and Company, Calcutta	...			1
„ Haage and Schmidt, Erfurt	...			1
„ Hugh Low and Company, London	...			1
„ Octavius, Steel and Company, Calcutta	...			1

APPENDIX IV—continued.

TO WHOM SENT.	Number of parcels or packets.
Messrs [^] Reasoner Brothers, Royal Palm Nurseries, Manatee, Florida ...	4
Messrs. Stanley, Price and Company, Calcutta ...	26
Deputy Commissioner, Ludhiana ...	2
Ditto, Peshawar ...	2
Conservator of Forests, Pegu Circle, Rangoon ...	2
Ditto, Northern Circle, Madras ...	13
Ditto, Bengal, Darjeeling ...	1
Ditto, Shillong ...	1
Assistant Conservator of Forests, Ajmere ...	8
Ditto, ditto, Kureeong ...	3
Ditto, ditto, Nimar Division ...	1
Deputy Conservator of Forests, Buksa Duar, Jalpaiguri ...	1
Ditto ditto, Rangamati ...	1
Ditto ditto, Orissa ...	1
Executive Engineer, Dehree Workshop Division, Dehree ...	7
Ditto, Dehree Irrigation Hospital, ditto ...	1
Ditto, Bhoginpur Division, Ganges Canal ...	1
District Engineer, Rungpur ...	4
Collector of Shahabad ...	2
Ditto of Bankipur ...	2
Ditto of Durbhunga ...	2
Ditto of Mozufferpore ...	2
Officiating Collector of Sarun ...	2
Acting Sub-Collector, Rajamundry ...	1
Ordnance Officer in charge of Arsenal, Fort William ...	23
District Forest Officer, Nilambur, Madras ...	4
Ditto ditto, Kistna ...	1
Officer in charge, Public Works Department, Garo Hills ...	1
Commandant, Military Police, Yemethin, Burma ...	27
Chairman, Local Board, Tajpur ...	1
Sub-divisional Officer and Chairman of the Local Board, Ranaghat ...	3
Assistant Director of Agriculture, Madras ...	1
Political Agent, West Malwa, Augor ...	1
Ditto, Bhopal, Sehore ...	3
Principal, Government College, Ajmere ...	3
Professor, Government Engineering College, Sdebpore ...	47
Miss Kilby, Darjeeling... ...	38
„ Johnson, Darjeeling ...	12
„ Violet Marder, England ...	20
Mrs. A. Donnithorne, Howrah ...	2
H. T. Bottinger, Esq., Calcutta ...	80
Cav. F. Bozzoni, Consul-General for Italy, Bombay ...	138
Reverend John Cain, Dumagudiem, Godavari ...	1
G. Collins, Esq., Shillong, Assam ...	1
Brigade Surgeon Condor, Cawnpur ...	1
C. J. Courteny, Esq., Aiiipore ...	18
C. Curtis, Esq., Forest Department, Penang ...	19
Picton Davis, Esq., Plaisance, Quetta ...	3
J. Gammie, Esq., Mungpoo ...	11
H. Gerlich, Esq., Calcutta ...	18
W. T. Hall, Esq., Rangoon ...	2
Lieutenant H. Hodges, Monywa, Upper Burma... ...	2
Reverend W. Kief el, Hazaxibagh ...	1
George H. T. Mayer, Esq., Khusru Bagh, Allahabad ...	4
Colonel Ralph Ousley, Dhukrani, Rambagh ...	6
J. Peter, Esq., Mertinga... ...	2
R. Pantling, Esq., Mungpoo ...	2
Winter R. Le Quesne, Esq., Calcutta ...	1
D. P. Easy Beddy, Esq., Yadiki, Anantapur ...	2
Mr. Roberts, Howrah „ ...	44
L. J. E. Scott, Esq., Rajahmundry, Madras ...	6
O. P. Smith, Esq., Betwa ...	1
Thonias Ward, Esq., Madampalle, Cuddapah ...	2
<j. E. Ward, Esq., Jhansi ...	1
M. R. Weld, Esq., Ganjam District, Berhampur ...	22
Baboo A. C. Sein, Seebpore ...	1
„ A. C. Dcy, Thana Makooah ...	1

APPENDIX IV—*concluded.*

TO WHOM SKNT.				Number of parcel or packets.
Baboo	B. K. Mookerjee, Seebpore	...	...	1
99	B. B. Ghosh, Taki	...	...	25
19	D. N. Bose, Calcutta	...	...	22
9>	G. C. Mookerjee, Nazirganj	...	...	1
19	G. C. Datta, Seebpore	...	...	20
19	J. C. Biswas, Calcutta	...	...	6
19	L. G. Goswamy, Sonapore	...	...	34
19	N. G. Chatterjee, Calcutta	...	...	8
99	O. C. Singh, Bhagalpur	...	...	2
99	P. C. Ghosh, Calcutta	...	...	5
19	P. C. Sein, Seebpore	...	...	1
99	P. N. Singh, Bankura	...	...	a
99	R. Prosad, Janakganj	...	...	1
19	B. N. Pandey, South Arcot	...	...	2
19	S. P. Chatterjee, Calcutta	...	...	1
19	T. J. C. Datta, Midnapore	...	...	1
Total				2,075

FINANCIAL DEPARTMENT.

MISCELLANEOUS.

¹ CALCUTTA, THE 6TH AUGUST 1889.

RESOLUTION.

READ—

The Annual Report of the Royal Botanic Garden, Calcutta, for the year 1888-89.

During the year under report the Palm-house was completed and the continuation of the riverside road from Shalimar Point to the Garden commenced.

2. Some valuable additions have been made to the Herbarium, among which may be mentioned the collections from the Shan Hills presented by General H. Collett, C.B., from the Naga Hills by Mr. Peal, and from the Eastern Frontier districts by Mr. C. B. Clarke. Contributions were also received from the Kew and Perak Museums, the Straits Settlements and Saharanpore, and specimens were sent to most of the leading Botanic museums in Europe.

3. Dr. King completed, during the year under report, the second part of his important work "Annals of the Royal Botanic Garden" which deals with the Ficus, and is now engaged on the preparation of a new part on the Indo-Malayan species of oaks and chestnuts. These treatises, as they are completed, have been circulated to all the chief museums and Botanical gardens in Europe and elsewhere, and are highly appreciated for their scientific value and accuracy.

4. The thanks of the Lieutenant-Governor are again due to Dr. Ring for his efficient management of the Garden, and to Dr. Prain, the Curator of the Herbarium, who officiated for him during his absence, on furlough, from April to November.

ORDER.—Ordered that a copy of this Resolution and of the Report be submitted to the Government of India, in the Revenue and Agricultural Department, for information.

Ordered also that a copy of this Resolution be forwarded to the Superintendent of the Botanic Garden for information.

By order of the Lieutenant-Governor of Bengal,

H. J. S. COTTON,

Offg. Secretary to the Government of Bengal.

No. **M $\frac{2-B}{3}$ 2.**

COPT forwarded to the Superintendent of the Royal Botanic Garden, Calcutta, for information.

By order of the Lieu tenant-Governor of Bengal,

P. J. MONAHAN,

Offg. Undersecretary to the Oovt. of Bengal.

CALCUTTA,
The 6th August 1889.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN, CALCUTTA, FOR THE
YEAR 1889-00.

No. 17G, dated Seebpore, the 14th May 1890.

From—BRIGADE-SURGEON GEORGE KING, M.B., LL.D., F.R.S., O.L.B.» Saperintendent,
Royal Botanic Garden, Calcutta,

To—The Secretary to the Government of Bengal, Financial Department.

I HAVE the honour to submit herewith the one hundred and third Annual
Report of the Royal Botanic Garden.

ANNUAL REPOET OP THE ROYAL BOTANIC GABDEN, CALCUTTA, FOB THE TEAS
1889-90.

No new work of much importance was carried out in the garden during the year, and the attention of the staff was chiefly devoted to the maintenance, in as high a state of efficiency as possible, of the various departments of the garden. The display of orchids was by far the finest that has been seen in the garden since I took charge of it nineteen years ago. This improvement is due partly to the great recent extension of correspondence and interchange with Collectors, both in India and outside its borders, and partly to improvements in our conservatories and in our methods of cultivation. The number of tropical South American orchids in the collection is steadily increasing; and our accessions have been obtained for the most part by exchange for indigenous species. Much labour and material have been expended on the roads within the garden. It is, however, a matter of great regret that the new road leading to the garden along the river bank remains still incompleated by the Department of Public Works. The completion of this road would greatly increase the number of visitors; for there is no doubt that the crowded condition of the present route through the narrow bazars of Howrah, Ramkristopore and Seebpore acts as a deterrent to many. The last of the disputes as to boundaries of the garden having, by the advice of the Legal Remembrancer, been settled by compromise, it only now remains to prevent the recurrence of any encroachments in future by the erection of a proper boundary fence. Estimates for this work are understood to be in preparation by the Executive Engineer in charge of the Workshop Division.

2. *Economic plants*.—A considerable correspondence regarding plants of economic interest of various sorts forms part of the regular work of the Superintendent. During the past year there has been no diminution of this. And the issues of economic plants themselves to Government officers and to others have been considerable. The cheap# and efficient extraction of rhea fibre still remains an unsolved problem; and I am informed by Colonel Gadell, v.c., Chief Commissioner of the Andamans, that the working of the French machine so generously presented to the Settlement there by Sir Walter deSouza has not hitherto been very successful. A process involving the use of very simple machinery is understood to be under trial by private enterprise in Bengal; but, with what promise, I have not yet heard. The cultivation of the species of plantain which produces the fibre known as *Manilla Hemp* is receiving a patient and extended trial under Colonel Cadell's fostering care in the Andamans; and I trust the result may prove favourable. The use of *Sabai*, *Bhabur* or *Babui* grass, which was first suggested as a good raw material for paper-making in the annual reports of this garden, has now become fairly established; and large quantities are regularly purchased by the various paper mills in Northern India. As yet, however, this fibro does not appear to form an article of export.

3. *Herbarium*.—From a scientific view the collection of dried^ and named plants is the most important feature in a Botanic Garden. But it is the feature which has the least amount of interest for the general public. Very few of even the most regular visitors to this garden have ever been inside the building in which the Calcutta Herbarium is housed, and they know little of the extent

and importance of the collection. It may not be out of place therefore to give a brief account of its recent progress. Up to the year 1882, the Herbarium was crowded in a small and totally insufficient building. During the late Sir Ashley Eden's tenure of office as Lieutenant-Governor, an admirable new structure, modelled to some extent on the new Herbarium building at Kew, was erected in the garden. At the time when the mounted collection was removed from the old into this new building it was accommodated in 93 cabinets. It now fills 186 cabinets, uniform in size with the former 93 ; and the number of specimens is estimated at considerably more than half a million. And there is, over and above, a very large number of specimens in boxes and open shelves which have not yet been examined or named. Fresh consignments of specimens are continually arriving; and, in view of the recent orders of the Government of India for the botanical exploration of Burma and Assam, for the centralization (on the recommendation of the authorities at Kew) of Indian botanical operations in the Calcutta garden, and for the appointment of its Superintendent as Director of the Botanical Survey of India, accessions at a still increased rate are inevitable. The treatment of the material thus received involves not a little mechanical labour, and an amount of critical botanical work of which none but an expert can form any just idea. Specimens, on arrival, have to be accurately ticketed and to be laid out on sheets of paper for being mounted. That is mechanical work, and is to a large extent done by comparatively unskilled labour, under supervision of course. But, after having been mounted and poisoned, the specimens have to be arranged according to natural families, and finally referred to their genera and species. This is botanical work, and it can be done only by a skilled botanist. Moreover, it can be done quickly and accurately only by a botanist of experience. It takes many years to acquire such experience when a Flora so varied and extensive as that of India has to be dealt with, comprising as it does more than 14,000 species of flowering plants, to say nothing of the still more numerous flowerless species. Several specimens of each species are usually received in every gathering, and these are disposed of in the following way. One or more is incorporated in the general Herbarium, while the duplicates are distributed to other Herbaria, either in India or in Europe. The distribution of named specimens of Indian plants to the great Herbaria located at the centres of botanical science in Europe is much appreciated by European botanists. The working of this on any considerable scale has, however, been possible only for the past three years, during which time I have had the advantage of the services, as Curator of the Herbarium, of Dr. D. Prain, who is at once an accomplished botanist and an energetic man. But, even with Dr. Prain's help, the work is getting very heavy, and it may be necessary before long to apply for the services of yet another botanist. During the year under review the following named specimens have been issued:—

Herbarium, Royal Gardens, Kew (<i>new and critical species only</i>)	...	459
Herbarium, Royal Botanic Garden, Peradeniya	...	405
Herbarium, Saharanpur	...	660
Government Central Museum, Madras	...	103
Herbarium, Botanic Garden, Singapore	...	361
Government Museum, Perak	...	286
College of Science, Poona	...	60
C. Curtis, Esq., Forest Department, Penang	...	123
3. 8. Gamble, Esq., Conservator of Forest, Madras	...	88
W. A. Talbot, Esq., Deputy Conservator of Forests, North Canara	...	95
B. H. Hullett, Esq., Principal, Raffles Institute, Singapore	...	14
G. Mann, Esq., Conservator of Forests, Assam	...	200
Dr. G. Watt, C.I.E., Simla	...	25
British Museum, London	...	507
Herbarium, Imperial Gardens, St. Petersburg	...	739
Do. do. (<i>specially asked for</i>)	...	86
Smithsonian Institution, "Washington, U. S. A.	...	707
Royal Botanical Museum, Berlin	...	509
Herbarium, Jardin des Plantes, Paris	...	432
Royal Botanical Museum, Florence	...	90
Royal Herbarium, Leiden	...	539
Imperial Herbarium, Vienna	...	328

Carried over ...6,806

	Brought forward	... 6,806
Herbarium of the University of Cambridge	...	272
Herbarium of the University of Edinburgh	...	254
Herbarium of the University of Upsala	...	220
Herbarium of the University of Aberdeen	...	180
Herbarium of the University of Utrecht	...	123
Herbarium of M. A. de Condolle, Geneva	...	634
Herbarium of Signor O. Beccari, Florence	...	491
Herbarium, Botanic Garden, Buitenzorg	...	246
		<hr/> 9,226

On the other hand, 6,060 specimens have been received from various contributors, amongst whom the chief are the Director of Kew, the Director of the Botanic Garden, Singapore, the Curator of the Museum at Perak, Mr. Curtis, of the Penang Forest Department, Messrs. J. Sykes Gamble, Gustav Mann and W. A. Talbot, of the Indian Forest Department. Dr. Prain has also, in connection with the botanical survey, collected 808 plants. The determination and description of hitherto undescribed species is a very important part of herbarium work, eliciting, as it does, whatever botanical acumen and sagacity a man may possess. A considerable number of new species have been described during the year. As regards, publications, a monograph by the Superintendent, of the Jack-fruits, Oaks and Chestnuts of the Indo-Malayan region has been issued during the year. This forms the second volume of the Garden Annals, and is illustrated by 104 quarto figures, drawn by the garden artists, and lithographed mostly at the Government School of Art. The third and concluding part of the Superintendent's monograph of the genus *Ficus* has also been issued; and to this is appended a most important memoir by Dr. D. D. Cunningham, F.R.S., on the mode of fertilization in one of the species. Dr. Prain has published a most interesting paper on new species of *Pedicularis*, and another on the Flora of the Laccadive Islands; and he has prepared, with reference to a suggestion of the Agricultural Department of the Government of India, papers on the Non-indigenous Element in the Andamans' Flora and on the Flora of Diamond Island. He has besides elaborated a large and important monograph of the difficult and extensive genus *Pedicularis*. This is at present passing through the press, and will soon be published in the third volume of the Garden Annals.

Botanical collections in Burma and Assam.—The Government of India, in the Agricultural Department, having made over to the garden the sum of Rs 1,000 for the purpose of collecting specimens in Burma and Assam, I was enabled to do more than usual in both these provinces. In Burmah a native Collector was sent into the Shan Hills, and a good many interesting specimens were obtained. The country was still, however, rather too unsettled for very successful collecting. Dr. Prain personally visited Diamond Island* the Andaman Islands, and also the Great Coco and Table Islands which lie to the north of that group, and which were previously botanically unknown. Dr. Prain secured good collections in all these localities, and, as already stated, he has prepared some results of these visits for publication. In Assam, the exploration grant was expended in maintaining a native collector in the Aka Hills, under the supervision of Mr. Penny. The collector was, however, unable to penetrate far into the Aka country. A Eurasian collector was also subsidised in Cachar.

5. *Library.*—The library has been entirely rearranged; many tracts and small memoirs, hitherto uncatalogued, have been incorporated; and a fresh catalogue has been prepared by Dr. Prain. A large number of volumes have also been rebound, and a few new books have been acquired.

6. *Interchange of plants and seeds.*—From the distribution lists attached as appendices to this report, it will be seen that the issues of packets of seeds during the year amounted to 3,619 as against 2,075 for the previous year; and that no fewer than 58,901 living plants were distributed, as against 31,183 during 1888-89. Both plants and seeds were issued mostly for public purposes. Sales to private persons of plants which are easily obtainable from private nurseries are not encouraged, as it is not desired to interfere with commercial enterprise. Packets of seeds to the number of 1,282 and 13,392 living plants were received during the year, both numbers being thirty per cent, in excess of those of last year.

7. *Lloyd Botanic Garden*.—Mr. W. A. Kennedy was in charge of the Botanic Garden at Darjeeling for nine months of the year. During the remaining three months Mr. Kennedy was on privilege leave in Europe, and his duties as Curator were performed by Mr. Hartless, one of the assistants on the Cinchona Plantation. Both Messrs. Kennedy and Hartless, in addition to their duties in the garden itself, devoted a good deal of attention to the general improvement of the station of Darjeeling by planting young trees in all hopeful spots. This is, however, a very difficult and, I fear to some extent, a thankless task; for the present happiness and unbridled liberty of milk-cows and goats is considered by many of the residents as of more consequence than the future amenity of the station.

8. The sum provided in the budget for the maintenance of the gardens, both at Calcutta and Darjeeling, was spent in full. And the whole of the additional sum of Rs. 1,000, contributed by the Government of India for botanical collections in the provinces of Assam and Burmah, was also expended. The estimated receipts (Rs. 1,700) were almost realised, there being a short-coming of only Rs. 46-5.

9. Dr. Prain was in charge of the Herbarium and library during the year, and worked with untiring zeal. As I have explained in paragraph 3, the present efficient condition of the scientific department of this institution is very largely due to the skill and energy of this officer. I have also to acknowledge the efficient assistance in comparing specimens of various difficult and obscure plants given during the year by Mr. W. Botting Henisley, F.B.S., Indian Assistant at the Royal Herbarium, Kew. Messrs. McHardy and Proudlock have respectively carried on the duties of Curator and Assistant Curator of the garden during the year with much enthusiasm and energy. Baboos Gopal Chandra Dutta, the head of the office establishment, and Prosonno Coomar Sein, the garden overseer, both discharged their duties admirably. The latter, I greatly regret to say, died from the effects of a severe attack of influenza shortly after the year ended. Man and boy he had been connected with the garden for fifty years, and in him Government lost a faithful servant of the good old school. Innocent of the kind of information by which now-a-days a University degree is secured, and conservative to the last degree of old customs and ways of thinking, the Baboo possessed an amount of knowledge of plants, ^ and of their cultivation and uses, which it is quite unusual to find amongst native gentlemen of the present day.

10. The usual appendices, four in number, are attached:—

APPENDIX I.

Statement showing plants received from 1st April 1889 to 31st March 1890.

FROM WHOM RECEIVED.				Wardian cases.	Boxes.	Number of plants.
Royal Garden, Kew, London	...	...	...	4	1	175
Royal Botanic Garden, Peradeniya, Ceylon	...	...	...	2	...	70
Botanic Garden, Glasgow	...	...	...	...	1	683
Ditto, Georgetown, Demerara	...	...	...	3	5	330
Ditto, Singapore	...	...	...	1	...	19
Ditto, Ootacamund	...	...	...	...	2	290
Ditto, Saharanpur	...	...	...	...	2	927
Ditto, Darjeeling	...	...	...	...	15	1,116
Zoological Garden, Alipore	...	...	...	...	...	2
Agri-Horticultural Society, Calcutta	...	...	...	...	2	792
Agri-Horticultural Garden, Lahore	...	...	...	...	4	24
Conservator of Forests, Madras	...	...	...	...	...	7
Ditto, Shillong	...	...	...	...	4	395
Messrs. Reasoner Brothers, Royal Palm Nurseries, Manatee, Florida	...	...	...	...	...	5
Messrs. H. Low and Company, Clapton Nursery, London	...	...	...	...	1	18
„ F. Sanders and Company, St. Albans, England	...	...	...	2	...	46
E. D. Sturtevant, Esq., Florist, Borden Town	...	...	...	...	1	2
Army and Navy Auxiliary Co-operative Supply, Limited, Westminster	###	...	...	...	...	27
T. C. Anderson, Esq., Ceylon	...	...	...	1	1	85
G. W. Bartlett, Esq., Calcutta	...	...	...	...	...	4
Dr. Bell, Chittagong	...	...	...	...	...	1
A. Betts, Esq., Calcutta	...	...	...	...	...	10
Major A. W. Baird, K.E., Calcutta	...	...	...	...	...	1
Six W. Bowman, Joldwnynds, Dorking	...	...	...	...	1	2
J. McCaw, Esq., Calcutta	...	...	...	...	...	37
Dr. D. D. Cunningham, Calcutta	...	...	...	...	...	2
C. Curtis, Esq., Penang	...	...	...	3	3	331
Mrs. Day, Calcutta	...	...	...	...	...	1
H. Durnford, Esq., Singapore	...	...	...	1	...	193
Captain Elcoate, 8. Victory	...	...	...	...	...	5
Dr. French, Buxa, Bhootan	...	...	...	...	...	1
J. Gammie, Esq., Mungpoo	...	...	...	...	7	335
Hon'ble C. B. Garrett, Calcutta	...	...	...	...	...	2
General Gatacre, D. S. O.	...	...	...	...	1	1
G. Barton Groves, Esq., Dacca	...	...	...	1	1	32
W. G. Head, Esq., Crystal Palace, London	...	...	...	1	1	347
H. O. Johnston, Esq., Singapore	...	...	...	2	...	44
Sir George Maoleay, Pendell Court, England	...	...	...	1	...	27
J. L. Lister, Esq., Kalimpong	...	...	...	...	4	242
Mrs. Lyall, Calcutta	...	...	...	...	...	1
Dr. O. Mackenzie, Calcutta	...	...	...	...	...	6
E. H. Man, Esq., Andamans	...	...	...	2	...	162
O. Maries, Esq., Gwalior	...	...	...	...	9	830
G. H. T. Mayers, Esq., Allahabad	...	...	...	...	3	29
T. N. O'Connell, Esq., Simla	...	...	...	...	1	39
J. Parkes, Esq., Kalimpong	...	...	...	...	12	726
8. E. Peal, Esq., Sibsagar	...	...	...	...	...	5
G. MoD. Peohe, Esq., Moulmein	...	...	...	...	5	530
M. V. Portman, Esq., Andamans	...	...	...	4	...	84
Dr. D. Prain	...	...	...	2	...	58
Mrs. D. Prain	...	...	...	...	...	44
Mr. J. O. Prazer	...	...	...	...	3	289
R. Rose, Esq., Lucknow	...	...	...	...	1	70
E. Smith, Esq., Dunedin	...	...	...	1	2	96
W. Stalkartt, Esq., Ghoossery	...	...	...	...	...	2
Dr. O. J. Warden, Calcutta	...	...	...	...	...	2
Baboo P. C. Sein, Seebpore	...	...	...	...	...	1
„ S. P. Chatterjee, Calcutta	...	...	...	...	1	357

APPENDIX I—continued.

FROM WHOM RECEIVED.	Wardian cases.	Boxes.	Number of plants.
Haree Mallee, Maniktolla	94
AbdoolHok	...	4	866
Unknown donors	...	2	166
Bought from bazar	4
Botanic Garden, Saharanpur
Ditto, Bangalore
Deputy Postmaster, General, Luoknow	2,250
O. Maries, Esq., Superintendent, State Gardens, Gwalior
Agri-Horticultural Society's Garden, Madras
Total	31	100	13,392

APPENDIX II.

Statement showing plants sent out from 1st April 1889 to 31st March 1890.

TO WHOM SENT.	Wardian cases.	Boxes.	Number of plants.
Government House Garden, Calcutta	23
Belvedere Garden, Alipore	8
His Highness the Maharjah of Jeypore	...	14	193
Royal Garden/tKew, London	...	4	419
Imperial Garden, St. Petersburg	...	1	79
Boyal Botanic Garden, Peradeniya, Ceylon	...	1	77
Botanic Garden, Edinburgh	...	1	71
Ditto, Glasgow	...	1	110
Ditto, George Town, Dexnerara	...	2	36
Ditto, Ootaoamund	...	1	77
Ditto, Saharanpur	...	4	655
Ditto, Darjeeling	...	2	19
Eden Garden, Calcutta	10
Zoological Garden, Alipore	31
Publio Garden, Bhagulpore	...	1	4
Viotoria Garden, Bombay	...	1	68
Agri-Horticultural Garden, Lahore	...	24	363
Ditto, Caloutta	460
Sir George Macleay, Pendell Court, Surrey	8
„ W. Bowman, Joldwynds	70
W. G. Head, Esq., Crystal Palace, London	...	1	77
B. M. Bedhead, Esq., Manchester	...	2	164
E. Smith, Esq., Dunedin	...	1	146
T. Brookebank, Esq, Liverpool	...	1	31
James Orr, Esq., England	...	1	44
Mrs. R. N. Otter, England	...	1	46
The Dowager Marobioness of Waterford	...	1	88
Lady Bradford, England	...	1	38
Miss Little, Blaokheath	...	1	87
Politioal Agent, Sikkim	...	2a	185
Ditto Superintendent, Jhalrapatan	...	1	4
Chief Commissioner, Andamans	...	2	39
Superintendent of Forests, Penang	306
Director of Land Records and Agriculture, Rangoon	48
Officiating Director, Forest Sohool, Dehra-Dun	...	1	19
Deputy Commissioner, Garo Hills, Assam	...	8	242
Sub-divisional Officer, Alipore, Western Duars	...	14	200
Ditto, Feni	...	2	38
Ditto, Pakur	...	11	227
Distriot Magistrate, Bhagulpore	...	7	164
Cantonment Magistrate, Dum-Dum	260
Ditto, Barrackpore	25

APPENDIX II—continued.

TO WHOM SENT.	Wardian cases.	Boxes.	Number of plants.
Deputy Magistrate, Ooloobaria	150
Secretary, District Board, Sarun	...	17	400
Ditto, Railway Institute, Jubbulpore	...	12	300
Ditto, Church Committee, Midnapore	...	2	35
Chairman, District Board, Noakhally	...	12	285
Ditto, ditto, Serajgunge	...	11	250
Ditto, Moorshidabad Municipality	...	3	48
Ditto, Serampore Municipality	65
Ditto, Rampore Beauleah Municipality	...	16	362
Ditto, Khulna Municipality	...	3	68
Vice-chairman, Bogra Municipality, Sultanpur	...	2	30
Ditto, Midnapore Municipality	250
Ditto, Calcutta Municipality	...	4	400
Ditto, Station Committee, Silohar	...	4	54
District Engineer, Bhagulpore	...	25	660
Ditto, Dinagepore	...	31	730
Ditto, Pubna	...	4	100
Ditto, Midnapore	1,000
Ditto, Damooda District	...	49	1,000
Ditto, Town Eoad Municipality, Dacca	...	3	65
Ditto, Khulna	...	5	102
Ezeoutive Engineer, Burdwan	...	6	102
Ditto, Sijberrah	200
Ditto, Nazirgunge	12
Sub-Overseer, in ocharge Serajgunge Division	...	8	200
Ditto, Calcutta Workshop Division, Seebpore	12
Superintendent, Board of Revenue, Calcutta	200
Ditto, Roads and Buildings Corporation, Caloutta	500
Ditto, Presidency Jail, Caloutta	74
Ditto, Jail, Alipore	...	1	85
Ditto, Jail, Burdwan	...	1	50
Ditto, Jail, Mymensing	...	2	50
Ditto, Central Jail, Dacca	...	1	80
Ditto, Waterworks, Singapore	2	1	84
Ditto, Foundry and Shell Factory, Cossipore	261
Ditto, Small Arms Ammunition Factory, Dum-Dum	50
Ditto, Pussewa Faotory, Jaunpore	...	1	1
Offioiating Superintendent, Oustoms and Preventive Servioes, Calcutta	8
Manager, Garjeng Jhora Tea Estate, Jalpaiguri	...	1	12
Ditto Mahmarra ditto, Assam	...	9	159
Surveyor-General, Caloutta	101
Deputy Postmaster-General, Lucknow	...	2	62
Officiating Master of the Mint, Caloutta	275
Station Hospital, Calcutta	322
Zenana Mission, Calcutta	250
Presidency General Hospital, Alipore	1,222
Principal, Medical College, Calcutta	500
La Martinière, Caloutta	267
Senate House, University, Caloutta	36
The Union Orphan Sohool, Calcutta	100
St. Teresa's Boarding Sohool, Kidderpore	100
Reformatory Sohool, Alipore	20
St. Agnes' Sohool, Howrah	70
Christ Church Parsonage, Caloutta	150
Spldiers' Garden, Fort William	2,964
East Indian Railway	2,159
Eastern Bengal State Railway	...	18	3,300
Officer in ocharge, Telegraph Office, Diamond Harbour	100
Barraokpore Park	76
Sulkea Salt Golah	1,103
Chartered Bank of India, Australia and China, Calcutta	50
Government Dockyard, Kidderpore	24
Praotioal Horticultural Institution, Cossipore	...	1 maund rhea stem.	...
Bazar of the Little Sisters of the Poor	12
Bis Graoo the Most Reverend Archbishop Goethals	4

APPENDIX II—continued.

TO WHOM SENT.	Wardian cases.	Boxes.	Number of plants.
Everend Father C. Cesary, Jamalpore	...	3	47
„ Dumont, Eanchi	...	1	36
„ H. B. Hyde, St. John's Churoh, Calcutta	246
„ F. Kolfe, Howrah	24
„ F. W. A. Smith, Baneegunge	...	3	24
„ A. M. Banerjee, Calcutta	300
Hon'ble C. B. Garrett	239
T. C. Anderson, Esq., Ceylon	1	...	15
C. A. B. Anderson, Esq., Jalpaigori	...	3	33
Mr. S. Apcar, Calcutta	20
J. Ay era, Esq., Howrah	14
H. Bahr, Esq., Eampore Hât	...	1	16
G. W. Bartlett, Esq., Calcutta	13
A. Betts, Esq., Calcutta	50
J. Bradshaw, Esq., Seebpore	100
Miss. A. Bradshaw, Mussoorie	...	1	21
J. S. Brook, Esq., Jamalpore	...	23	500
Mrs. Buckley, Garden Reach	20
Colonel T. Cadell, v.c, Andamans	1	...	34
Chamberlain, Esq., Calcutta	6
F. Collis, Esq., Calcutta	4
Lt.-Col. Cowper, Poona	...	1	2
Dr. D. D. Cunningham, Calcutta	75
Mrs. Day, Calcutta	199
H. Doran, Esq., Howrah	40
Dr. J. A. Dyer, Pachamba	...	5	50
Sir John Edgy, K.C.I.E., Calcutta	12
Mr. Ezra, Calcutta	1
Mrs. Fleming, Calcutta	...	1	146
J. Gammie, Esq., Mungpoo	...	1	6
J. H. Gilbert, Esq., Eogland	...	2	81
G. B. Groves, Esq., Dacca	1	2	37
John Halves, Esq., Calcutta	75
Captain Henderson, 3. S. Ooorkha	2
„ Ditto, S. S. Manora	6
„ Hutchinson, Burma	...	22	216
W. E. Kilburn, Esq., Calcutta	6
J. L. Lister, Esq., Nimbong	...	6	135
Mrs. Lyall, Calcutta	...	3	221
G. Mafflin, Esq., Calcutta	102
E. H. Man, Esq., Andamans	1	...	34
C. Maries, Esq., Superintendent, State Gardens, Gwalior	...	45	1,970
Mrs. Maxwell, Howrah	24
G. H. T. Mayer, Esq., Cawnpore	...	11	278
E. G. McLeod, Esq., Kissengunge	...	1	2
E. F. Mondy, Esq., Dacca	...	5	100
Mrs. Morrison, Ghosery	2
C. Nickels, Esq., Garden Beach	3
G. W. Noal, Esq., Seebpore	420
J. D. Osraers, Esq., Calcutta	94
E. H. Palmer, Esq., Chandbally	...	6	112
G. McD. Peche, Esq., Moulmein	...	3	22
F. Pereira, Esq., Calcutta	14
Colonel Perreau, Calcutta	...	1	84
W. Pigott, Esq.	58
J. Q. Pigot, Esq.	20
M. V. Portman, Esq., Andamans	4	...	113
J. Robinson, Esq., Bhagulpore	...	11	261
E. C. Hyland, Esq., Eangamati	...	20	300
J. S. Slater, Esq., Seebpore	23
W. P. Smith, Esq., Bhagulpore	56
Mrs. Thomson, Calcutta	81
Dr. C. J. Warden, Calcutta	...	2	4
C. A. Wilkins, Esq., Bhagulpore	60
Messrs. Maurice, Feelman & Co., Calcutta	20,000*
„ Burn & Co., Calcutta	...	2	1

* And 4 haumiU rhoea stems.

APPENDIX II—concluded.

TO WHOM SENT.	Wardian cases.	Boxes.	Number of plants.
Bowreah Cotton Mills Company, Limited	1,000
Raja Mohima Banjan Bai Chowdhoory, Bimspur	172
Baboo Bai Prosonno Coomar Banerjee, Bahadoor, Calcutta	14
" " Setal Chand Nahar Bahadoor, Azimgunge	...	2	38
" G. C. Datta, Seebpore	111
" P. C. Sein, "	14
" S. P. Chatterjee, Calcutta	269
" A. K. Bose, Belgoriah	7
" A. T. Labiri, Krisnaghur	...	1	1
" B. C. Chatterjee, Baraset	1
" B. Ii. Mookerjee, Seebpore	52
" G. C. Dass, Nazirgunge	2
" H. C. Gangooly, Santipur	5
" H. S. Boy, Caloutta	1
" H. T. Dass, Mondulghat	2
" J. C. Lahiri, Caloutta	...	4	24
" J. C. Biswas, Seebpore	3
" K. C. Palit, Calcutta	8
" K. M. Pal, Seebpore	6
" K. N. Ghose, Bantra	2
" M. N. Boy, Calcutta	...	3	42
" N. B. Mitra, Dinajpur	...	7	148
" O. N. Sein, Bally	1
" P. C. Boy Chowdhoory, Seebpore	2
" B. K. Boy, Goneshpur	34
" B. Maleah, Howrah	13
" B. Mottle, MozufPerpore	15
" S. B. Ghose, Seebpore	16
" S. C. Chatterjee, Calcutta	4
" S. C. Mookerjee, Seebpore	50
" T. N. Chatterjee, Calcutta	5
" U. N. Sein, Tjmbioa-Culna	17
" S. N. Singh, Balgarh	...	1	114
" Dadabhoy, Calcutta	...	1	12
" Yenayek Bam (Jhander Laxmonjee, Bombay	...	1	1
Drobo Kumar Brahmooheiy, Seebpore	2
Bepin Chander Punohagni, Oossipore	3
Shaik Soobeed, Nazirgunge	6
" Jomeerudy, Thana Makooah	34
" Abdool Somer, Buxara	1
Khabill Kazie, Seebpore	2
Goburdhun Nusker, Trisbiga	...	6	359
Bup Chand Boiragi, Majirhat	4
Essan Chander, Malie, Nurseryman, Maniktolah	100
Hari, Malie, Maniktolah	18
Messrs. F. Sander and Co., St. Albans, England	...	2	2,078
Total	24	602	58,901

APPENDIX III.

Statement showing seeds received from 1st April 1889 to 31st March 1890.

FROM WHOM RECEIVED.				Number of parcels or packets.
W. T. Thiselton Dyer, Esq., F.B.S., C.M.G., Director, Royal Garden, Kew, London	...	...	...	43
Dr. Regel, Imperial Garden, St. Petersburg, Russia	...	...	...	13
Royal Botanic Garden, Peradeniya, Ceylon	...	...	...	4
Botanic Garden, Jamaica	...	...	...	1
Ditto, Trinidad	...	...	...	12
Ditto, Demerara	...	...	...	5
Ditto, Adelaide	...	...	...	35
Ditto, Melbourne	...	...	...	78
Ditto, Rockhampton	...	...	...	14
Ditto, Hobart Town	...	...	...	59
Ditto, Hong-Kong	...	...	...	1
Ditto, Singapore	...	...	...	3
Ditto, Mauritius	...	...	...	1
Ditto, Ballarat	...	...	...	13
Ditto, Saharanpur	...	...	...	53
Ditto, Darjeeling	...	...	...	320
Ditto, Bangalore	...	...	...	3
Victoria Garden, Bombay	...	...	...	1
George H. T. Mayer, Esq., Memorial Garden, Cawnpore	...	...	...	3
Baron Ferdinand von Mueller, F.R.S., Melbourne, Australia	...	...	...	6
Messrs. Dammann & Co., San Giovanni, Italy	...	...	...	66
Reasoner Brothers, Royal Palm Nurseries, Manatee, Florida	...	...	...	33
Secretary, Queensland Acclimatisation Society, Brisbane, Queensland	...	...	...	3
C. Curtis, Esq., Forest Department, Penang	...	...	...	3
Secretary to the Agri-Horticultural Society of India, Calcutta	...	...	...	7
Ditto ditto, Madras	...	...	...	1
Superintendent, Horticultural Garden, Lucknow	...	...	...	50
Ditto Government Agri-Horticultural Garden, Lahore	...	...	...	175
Conservator of Forests, Northern Circle, Madras	...	...	...	20
Ditto Assam, Shillong	...	...	...	2
Deputy Conservator of Forests, Haliyal, North Canara	...	...	...	1
District Forest Officer, North Malabar, Manantoddy	...	...	...	6
Reverend Arthur £2. Summers, Baptist Mission, Pubna	...	...	...	22
J. W. Baker, Esq., Calcutta	...	...	...	1
W. H. Cheetham, Esq., Calcutta	...	...	...	1
Manager, Doonagiri Tea Estate, Ranikhet	...	...	...	1
B. Li. Cumberland, Esq., Orange Grove Durban, Natal	...	...	...	1
Dr. D. D. Cunningham, Calcutta	...	...	...	130
J. Gammie, Esq., Mungpoo	...	...	...	1
Deputy Commissioner, Garo Hill^Tura, Assam	...	...	...	2
Joseph Hughes, Esq., TownsvilidB	...	...	...	19
G. H. F. Jamieson, Esq., Salt Range, Shahpur	...	...	...	1
Dr. G. King, C.I.B.	...	...	...	1
J. L. Lister, Esq., Kalimpong	...	...	...	8
District Forest Officer, Kurnool, Madras	...	...	...	1
Superintendent, Campbell Medical School and Hospital, Calcutta	...	...	...	1
C. Maries, Esq., Morar, Gwalior	...	...	...	21
George H. T. Mayer, Esq., Khusrubagh, Allahabad	...	...	...	7
K. PantHng, Esq., Mungpoo	...	...	...	2
Dr. David Prain, Royal Botanic Garden, Calcutta	...	...	...	8
A. Simson, Esq., Calcutta	...	...	...	1
Munshi J. P. Abraham, Colombo, Ceylon	...	...	...	1
Abdool Hok, Rangoon	...	...	...	1
Unknown parties	...	...	...	17
Total	...	...	...	1,282

APPENDIX IV.

Statement showing seeds distributed from the Royal Botanic Garden during the year 1889-90.

TO WHOM SENT.				Number of parcels or packets.
W. T. Thiselton Dyer, Esq., F.R.S., C.M.G., Director, Royal				
Garden, Kew, London	...	...	...	425
Dr. Regel, Imperial Garden, St. Petersburg, Russia	...	...	...	209
Royal Botanic Garden, Peradeniya, Ceylon	...	...	...	13
Botanic Garden, Jamaica	...	...	...	4
Ditto, Trinidad	...	...	...	134
Ditto, Cambridge	...	...	...	295
Ditto, Brisbane, Queensland	...	...	...	88
Ditto, Melbourne	...	...	...	106
Ditto, Hobart Town, Tasmania	...	...	...	32
Ditto, Ballarat, Australia	...	...	...	1
Ditto, Edinburgh	...	...	...	293
Ditto, Demerara, British Guiana	...	...	...	136
Ditto, Buitenzorg, Java	...	...	...	15
Ditto, Singapore	...	...	...	17
Ditto, Ootacamund	...	...	...	2
Ditto, Saharanpur	...	...	...	80
Ditto, Darjeeling	...	...	...	117
Zoological Garden, Melbourne	...	...	...	87
M. le Administrateur-Directeur, de la Société Anonyme de				
Horticulture Internationale, Parc Leopold, Bruxelles,				
Belgium	...	...	...	8
M. Crepin, Directeur du Jardin Botanique de l'Etat,				
Bruxelles	...	...	...	1
Herr Max Leichtlin, Jardin Botanique Horticole, Baden-Baden	...	...	...	83
Director, Jardin des Plantes, Paris	...	...	...	2
Secretary to the Agri-Horticultural Society of India,				
Calcutta	...	...	...	1
Secretary to the Public Garden, Bhagulpur	...	...	...	1
Superintendent, Horticultural Garden, Lucknow	...	...	...	19
Ditto, Agri-Horticultural Garden, Lahore	...	...	...	15
Ditto, Ditto, Madras	...	...	...	4
Ditto, Duthie Park, Aberdeen	...	...	...	65
Ditto, Victoria Garden, Bombay	...	...	...	2
Ditto, Gwalior State Garden, Morar	...	...	...	37
Ditto, Balasore Intermediate Jail, Balasore	...	...	...	1
Ditto, Beerbhoom Jail	...	...	...	2
Ditto, Bhagulpore Central Jail	...	...	...	1
Ditto, Burdwan Jail	...	...	...	7
Ditto, Central Jail, Alipore	...	...	...	2
Ditto, Do. Rajahmundry	...	...	...	17
Ditto, Jail, Durbhunga	...	...	...	1
Ditto, Maimensing Jail	...	...	...	1
Ditto, Central Jail, Midnapore	...	...	...	2
Ditto, Monghyr Jail	...	...	...	1
Ditto, Palamow Intermediate Jail, Palamow	...	...	...	1
Ditto, Purneah Jail	...	...	...	1
Ditto, Kurnafuli Tea Association, Hulda Valley,				
Chittagong	...	...	...	5
Officiating Superintendent, Tributary Mehals, Cuttack	...	...	...	12
T. C. Anderson, Esq., Maskeliya, Ceylon	...	...	...	7
Sir A. J. Arbuthnot, K.C.S.I., India Office, London	...	...	...	107
Bignori T. Arcangeli, Italy	...	...	...	1
William Bull, Esq., F.L.S., Chelsea, London	...	...	...	4
B. L. Cumberland, Esq., Durban	...	...	...	1
C. Curtis, Esq., Penang	...	...	...	8
A. Forbes, Esq., Morkeu, Aberdeen	...	...	...	37
W. G. Head, Esq., Crystal Palace, London	...	...	...	5
R. D. Hoyt, Esq., Proprietor, Bay View Nurseries, Florida	...	...	...	3
Joseph Hughes, Esq., Townsville, Queensland	...	...	...	106
James Inglis, Esq., Sydney, Australia	...	...	...	27
Mrs. Irvine, Drum, Scotland	...	...	...	16
H. O. Levinge, Esq., Knockdrin Castle, Ireland	...	...	...	62
D. Low, Esq., Brindisi	...	...	...	2
Baron Ferdinand von Muller, F. K. S., University, Melbourne	...	...	...	4
J. Nelson, Esq., Florida	...	...	...	8

APPENDIX IV—*continued.*

TO WHOM SENT.				Number of parcels or packets.
Reverend A. Pakenham, Ireland	...	...	...	18
David Prain, Esq., Fettercairn, Scotland	...	...	...	12
Lieutenant O. C. Reid, Penang	...	...	...	3
R. M. Redhead, Esq., Springfield, England	...	...	...	37
Alexander Thomson, Esq., 14, Garden Place, Aberdeen	...	...	...	12
George F. Wilson, Esq., Heather Bank, Weybridge Heath, England	...	...	...	39
Thomas G. Wilson, Esq., Soerabaya, Java	...	...	...	1
Messrs. Dammann and Company, San Giovanni, Italy	...	...	...	36
„ Hugh Low and Company, London	...	...	...	22
„ Reasoner Brothers, Royal Palm Nurseries, Manatee, Florida	...	...	...	2
„ F. Sander and Company, St. Albans, England	...	...	...	3
„ Haage and Sohmidt, Erfurt...	...	...	...	5
„ James Veitoh and Sons, London	...	...	...	1
Deputy Commissioner, Kohat	...	...	...	2
Ditto Tura	...	...	...	6
Conservator of Forests, Northern Circle, Madras	...	...	...	14
Ditto, Shillong	...	...	...	1
Assistant Conservator of Forests, Jhelum	...	...	...	10
Ditto, Ajmere	...	...	...	21
Acting Conservator of Forests, Southern Circle, Madras	...	...	...	1
Officiating Conservator of Forests, Nagpur	...	...	...	1
Sub-Assistant Conservator of Forests, Jalpaiguri	...	...	...	1
Executive Engineer, Brahmini-Byturni Division, Cuttaok	...	...	...	1
Ditto, Dehree Workshop Division, Dehree	...	...	...	1
District Engineer, Dinajpur	...	...	...	6
Ditto, Rungpur	...	...	...	1
Chief Engineer, East Indian Railway, Calcutta	...	...	...	1
Collector and District Magistrate, North Arcot	...	...	...	11
Civil Surgeon, Prome	...	...	...	43
Ordnance Officer in charge of the Arsenal, Fort William	...	...	...	6
District Staff Officer, Quartermaster-General's Department, Fort William	...	...	...	4
W. Craw, Esq., Ranikhet	...	...	...	2
Manager, Bengal Stone Company, Limited, Calcutta	...	...	...	5
Proprietor and Manager, Pikeparah Nursery, Calcutta	...	...	...	1
Sub-Divisional Officer and Chairman, Local Board, Banaghat	...	...	...	6
Ditto, Pakur	...	...	...	27
Station Master, Toungoo-Mandalay Extension, Myotta	...	...	...	21
Principal, Government College, Ajmere	...	...	...	3
Lieut.-Col. H. B. Abbott, Jhalrapatan	...	...	...	3
Political Agent, Bhopal, Sehore	...	...	...	106
J. Barclay, Esq., Silchar	...	...	...	1
C. G. Bush, Esq., Mazira, Assam	...	...	...	43
Reverend John Cain, Dumagudiem, Godavari	...	...	...	1
J. Gammie, Esq., Mungpoo	...	...	...	22
David Foggo, Esq., Calcutta	...	...	...	2
W. T. Hi31, Esq., Bangoon	...	...	...	1
Lieutenant H. Hodges, Monywa	...	...	...	4
Captain Hutchinson, Yeu	...	...	...	2
T. ICanaran, Esq., Tellicherry, Malabar	...	...	...	1
J. Muir Mackenzie, Esq., Calcutta	...	...	...	1
George H. T. Mayer, Esq., Khusru Bagh, Allahabad	...	...	...	13
George H. T. Mayer, Esq., Lucknow	...	...	...	1
Major N. O. Martelli, Dholpur	...	...	...	10
J. W. Midru, Esq., Masulipatam	...	...	...	6
Mrs. J. M. MacMiller, Chicaoole	...	...	...	1
E. F. Mondy, Esq., Dacca	...	...	...	4
Mrs. Nolan, Darjeeling	...	...	...	12
R. Pantling, Esq., Mungpoo	...	...	...	6
Reverend W. Sutherland, Kalimpong	...	...	...	1
Mrs. Talbot, Bikanir	...	...	...	1
George Thomas, Esq., Monghyr	...	...	...	1
Mrs. B. H. L. Townsend, Calcutta	...	...	...	1
M. B. Weld, Esq., Ganjam District, Berhaxnpur	...	...	...	*3
Ditto ditto ditto, Eurnool	...	...	...	31
Sir A lexander Wilson, Calcutta	...	...	...	1
G. Marshall Woodrow, Esq., Poona	...	...	...	127

APPENDIX IV—*concluded.*

TO WHOM SENT.			Number of parcels or packets.
Pundit IT. Naraeinga Rao, Mangalore	...	...	1
Baboo D. N. Basu, Seebpore	...	...	20
„ D. P. Dutta, tfewopore	...	...	11
„ G. C. Datta, Seebpore	...	...	25
„ H. L. Singh, Ajaigarh	...	...	3
„ M. O. Baumik, Sajapukar, Shampur	...	...	2
„ M. M. Bosu, Bogra	...	...	1
„ M. D. Mookerjee, Ohinsurah	...	...	3
„ N. O. Boy, Calcutta	...	...	9
„ P. N. Singh, Bankura	...	...	2
„ B. M. Bose, Shahabad	...	...	3
„ S. L. Pragnarain, Agra City	...	...	1
Total			3,619

Gh KING, M.B, *Brigade-Surgeon,*
Superintendent, Royal Botanic Garden, Calcutta.

FINANCIAL DEPARTMENT.

MISCELLANEOUS.

DARJEELING, THE 14TH JUNE 1890

RESOLUTION.

READ—

The Annual Report of the Botanic Gardens for the year 1889-90.

Dr. King's report, which will as usual be published in the Gazette, gives an interesting account of the work done during the past year. The gardens have been maintained in a high state of efficiency, the herbarium in particular has been especially attended to, and organised exploration in Burma and Assam has added to it some valuable collections. Under the recent order of the Government of India this exploration will be extended. The control of Indian botanical operations has been centralised in the Calcutta Gardens, and the Superintendent has been appointed Director of the Botanical Survey of India. The grants promised by the Administrations of Burma and Assam will enable collections to be made on a larger scale and more continuously. As this work will constitute a separate Department, it has been ordered that in future years a separate report should be submitted on the subject.

2. During the year Dr. King issued a monograph on jack-fruits, oaks and chestnuts of the Indo-Malayan region. This forms the second volume of the *Garden annals*. The third and concluding part of his monograph on the genus *Ficus* has lately been issued. Dr. Prain has also published several important papers which are described in the Superintendent's Report.

3. The thanks of the Lieutenant-Governor are due to Dr. King, and to his able Assistant, Dr. Prain, for the very thorough and successful discharge of their duties throughout the year.

ORDER.—Ordered that a copy of this Resolution, and of the Report, be submitted to the Government of India, in the Revenue and Agricultural Department, for information.

Ordered also that a copy of this Resolution be forwarded to the Superintendent of the Botanic Gardens for information.

By order of the Lieutenant-Governor of Bengal,

H. J. S. COTTON,

Secretary to the Government of Bengal.

No. M *£ 2.

COPY forwarded to the Superintendent of the Royal Botanic Gardens, Calcutta, for information.

By order of the Lieutenant-Governor of Bengal,

H. J. S. COTTON,

Secretary to the Government of Bengal.

CALCUTTA,
The 18th June 1890.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN, CALCUTTA, FOR THE
YEAR 1890-91.

No. 15G, dated Seebpore near Calcutta, the 20th May 1891.

From—BRIGADE-SURGEON GEORGE KING, M.B., LL.D., F.R.S., C.I.E., Superintendent,
Royal Botanic Garden, Calcutta,

To—The Secretary to the Government of Bengal, Financial Department.

I ~~have~~ have the honour to submit herewith the one hundred and fourth Annual Report of the Royal Botanic Garden.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN, CALCUTTA, FOR THE
YEAR 1890-91.

As regards outdoor operations in the garden, there is but little that is of general interest to report for the year. One of the main driving roads leading from the Howrah gate was—thanks to a special grant of money made by Government for the purpose—put into excellent repair. The road round the great banyan tree was moved further out from the tree, and a new approach to the tree from the north was aligned and metalled; while the levels of the whole neighbourhood of the tree were improved, so that rain-water may in future drain freely off. The condition of many of the other driving roads within the garden is far from good, and the efforts of the outdoor staff must for some time be directed to their improvement as far as the funds at my disposal may admit. A good deal of damage was done to the parts of the garden near the river by the unusually high tides which prevailed for three days towards the end of the rains. Weak points in the embankment along the river have since been strengthened, and low places have been heightened, so as to prevent the recurrence of similar mischief in future years. The Department of Public Works having during the year completed the wire fence along the whole of the garden boundary not previously defined by a wall, the encroachments of unscrupulous outside cultivators and others have, it is to be hoped, been put an end to for ever. The condition of the conservatories is satisfactory, and the health of the plants cultivated in them leaves little to be desired. The collection of orchids, which is grown in one of them, bloomed with special luxuriance this season, the display of flower eclipsing even that of the previous year.

2. *Itconmicplanter*—Much attention has as usual been given to the cultivation and distribution of plants of economic interest. No new introduction of importance was, however, made during the year.

3. *Herbarium*.—Work in the herbarium was as usual, the whole of Dr. Prain's time and a large portion of my own having been devoted to it. The accessions of new specimens during the year have been of such importance that I give a list of them as an appendix. From this list it will be seen that these accessions considerably exceeded 20,000, and that no fewer than 6,311 of these were sent from the Koyal Herbarium at Kew, thus deepening the debt which the Calcutta collection already owes to that great national institution. The Royal Garden of St. Petersburg also contributed 1,150 specimens, chiefly collected by the Central Asian explorers Przewalski and Potanin. Mr. G. K. Mann, Conservator of Forests in Assam, contributed no less than 1,284 specimens, chiefly consisting of bamboos and Magnoliaceae which, after having been named, shall be distributed (according to Mr. Mann's desire) to the great herbaria in Europe. Other Forest officers who contributed during the year are—Mr. Lace, who sent a beautiful suite of 450 Beluchistan plants; Mr. Gamble, who sent 83 critical species; and Mr. Curtis of the Penang Forest Department, who sent 395 very interesting species. From the Botanic Gardens at Melbourne the indefatigable veteran, Baron Von Muller, F.R.S., contributed no less than 761 species; while Mr. Ridley of the Singapore garden sent 845. To General Collett, C.B., we are indebted for 304 critical plants from the Khasia Hills; to General Gatacre for 127 species from the Shan States in Burma; to Mr. S. Peal

for 210 specimens from Sibsagar, Assam; and to Mr. L. Wray, junior, for 853 from Perak. By collectors working directly under the agency of the garden, 6,783 specimens were brought in. Chief amongst these are 1,288 brought by Dr. Prain as the result of his exploration of the Great Coco Island; and about 1,800 collected in the Andamans under the direction of Mr. E. H. Man. Mr. Gammie, junior, sent 585 from Sikkim; while my ^{own} journeys to the Andamans and Khasia Hills yielded 960. On the other hand, 4,229 specimens (all carefully named) were issued to the principal herbaria in Europe.

4. *Botanical collections in Burma and Assam.*—As stated in my last annual report, the Government of India now gives an annual grant of Rs. 1,000 for the botanical exploration of the provinces of Burma and Assam; while the Governments concerned make similar grants, and also give facilities for collecting. During the year full advantage was taken of these arrangements so far as funds would admit; and, as a result, I visited Assam so as to organise collecting operations in that province. With the kind assistance of the late lamented Chief Commissioner (Mr. Quinton) and of Mr. Mann, Conservator of Forests, arrangements for employing native collectors were made which have already borne fruit. I also visited the Andamans where, by the extreme kindness of the Chief Commissioner, Colonel T. Cadell, v.c., and the friendly help of Mr. E. H. Man, I was enabled not only to make collections myself, but to arrange for the continuation of the work by Burmese. By the kind permission of Captain Hoskyns, R.N., of Her Majesty's surveying ship *Investigator*, Dr. Prain (Curator of the Herbarium) was not only allowed to accompany that vessel during part of her operations in the Bay of Bengal; but, by a special arrangement also made by the kindness of Captain Hoskyns, Dr. Prain was put down a second time on the Great Coco Island for a few days, and was also enabled to pay short visits to the Little Coco and to Rutland islands. Except for the visit made by Dr. Prain under similar circumstances last year, the Great Coco had not previously been explored by a botanist, and the Little Coco and Rutland islands were this year visited for the first time. Accounts of these visits will in due time be published by Dr. Prain. A Eurasian collector, named Prazer, was subsidised as a collector in Cachar and the Chindwin valley; while a Mussalman collector, named Abdool Hok, was sent from the garden to the Shan Hills in Upper Burma. Both of these men did fairly good work. Dr. Leslie was also kind enough to arrange for collections being made at some of the frontier stations in Burma. By the kind permission of Colonel Woodthorpe, C.B. (the Chief of the Intelligence Department), Lieutenant Colomb of that Department was so good as to look after a collector in a journey which he made at the base of the Eastern Himalaya, and some very interesting specimens were thus added to the herbarium.

5. *Publications.*—During the year the bulk of the material which is to be published in the third volume of the *Garden Annual* was prepared. That volume is to contain four memoirs. The first of these, on Indian species of *Pedicularia* by Dr. Prain, was (as stated in my last report) prepared during the previous year. The third memoir, on the genus *Gomphostemma*, also by Dr. Prain, and the second and fourth by myself, on Indian *Magnoliaceae* and on Indo-Malayan species of *dlyristica*, were elaborated during the year under review. -Owing to unavoidable delays, it has not been possible to issue the volume within the year, but its publication will not much longer be delayed. Dr. Prain has contributed to the journal of the Asiatic Society a paper on a new species of *Ellipanthus*, also a second and much longer paper on Indian *Libia toe*, in which 46 species (23 of which are new to science) are added (as the result of recent exploration) to the Flora of British India. Parts 1 and 2 of a series of papers by myself on the Malayan Flora have also been contributed to the journal just mentioned.

6. *Library.*—The work of rebinding the library has been continued during the year. A few new books have been acquired by purchase; while, from the Director of the Royal Garden at Kew, there have been received a large number of books—some of them of very great interest—withdrawn as duplicates from the library of that noble institution.

7. *Interchange of plants and seeds.*—The distribution lists attached as appendices to this report show that, during the year, 18,810 plants were received

and that 55,204 were distributed ; while of seeds 1,714 packets were received and 3,132 were issued. As usual, the recipients both of plants and seeds were mostly public officers.

8. *Lloyd Botanic Garden, Darjeeling.*—This branch garden was throughout the year under the charge of Mr. W. A. Kennedy, its Curator. The garden, which I recently inspected, is in very good order. In addition to his work in the garden itself, Mr. Kennedy is charged with the difficult task of planting and conserving trees in the barest and ugliest spots within the station, and especially in the bazar. Such trees have to be protected for years, not only from the ravages of goats and cattle, but from the recklessness of passing Nepalese and Bhutias, who seem to delight in trying newly-purchased kookries and dahs on the slender stems of these unfortunate nurslings.

9. The sums provided in the budget for the maintenance of the gardens both at Calcutta and Darjeeling were spent in full; and the estimated revenue was, with the exception of a few rupees, realised in both.

10. The Library and Herbarium were during the year in charge of Dr. Prain, whose zeal and devotion are beyond any praise of mine. I have here to acknowledge the kind assistance invariably given when asked for by the authorities at Kew, and especially by Mr. W. Botting Hemsley, F.B.S., when (as not unfrequently happens) knotty botanical points are submitted to them for solution. Mr. McHardy, recently Curator of the garden, resigned during the year, and his place was taken by Mr. R. L. Proudlock, who has worked with much energy and intelligence. For a few months, Mr. A. C. Hartless, of the Cinchona Plantation, was brought down to give assistance; but on the arrival from Kew of a new Assistant Curator in the person of Mr. G. T. Lane, Mr. Hartless returned to Mungpoo. During his spell of service here, Mr. Hartless did excellent work. My office staff have worked well, and my acknowledgments are particularly due to the head of the office, Babu Gopal Chunder Datta.

11. Five appendices are attached which show the issues and receipts of seeds and plants, and the receipts of specimens in the Herbarium.

APPENDIX I.

*Statement akotcing plants received from 1st April 1890 to 31st
March 1891.*

FBOM WHOM RECEIVED.	Wardian cases.	Boxes.	Number of plants.
Royal Garden, Kew, London ...	5	2	221
Royal Botanic Garden, Edinburgh	1	21
Ditto, Peradeniya, Ceylon ...	2	...	85
Botanic Garden, Singapore ...	1	2	171
Ditto, Ootacamund	1	314
Ditto, Saharanpur	2	1,741
Ditto, Darjeeling	20	282
Ditto, Bangalore ...	1	4	899
Memorial Garden, Cawnpore	1	5
Belvedere Garden, Alipore	12
Agri-Horticultural Society, Calcutta	"4	198
Ditto, Lahore	3	52
Ditto, Madras	1	1,000
Horticultural Garden, Lucknow	1	30
Municipal Garden, Bombay	1	1,000
1st MartiniSre School, Calcutta	7
Chief Commissioner, Andamans ...	5	...	357
Revenue and Agricultural Department, Simla	115
Deputy Postmaster-General, Lucknow	1	867
G. W. Bartlett, Esq., Calcutta	4
Mrs. A. Betts, Calcutta	25
General H. Collett, O.B., Shillong	2	91
Dr. D. D. Cunningham, F.B.S., Calcutta	32
C. Curtis, Esq., Penang ...	"	3	150
Mrs. Fishe, Barrackpore	4
G. Gammie, Esq., Mungpoo	5	389
W. Goss, Esq., Jalpaiguri	1	59
Dr. Griffiths, Allahabad	1	10
J. L. Lister/ Esq., Nimbong	1	289
G. Mann, Esq., Shillong	14	4,342
C. Maries, Esq., Gwalior	17	2,711
J. Parkes, Esq., Bhootan	12	690
G. McD. Peche, Esq., Moulmein	7	918
Dr. C. J. Simons, Assam	3	89
A. Simson, Esq., Calcutta ...	mmm	...	3
E. Trelawny, Esq., Calcutta	1
Colonel Waterhouse, Calcutta	86
Collected by Dr. G. King, Khasia Hills and Andamans	52
Collected by Dr. D. Prain, Great Coco Island	67
Ditto Mr. R. I* Proudlock, Mungpoo	35
Ditto Badul Khan, Plant Collector, Assam	2	122
Ditto Abdool Hok, ditto, Burma	6	761
Babu S. P. Chatterjee, Calcutta	5	944
Unknown donors	2	35
Total ...	14	125	18,816

APPENDIX II.

*Statement showing plants sent out from 1st April 1890 to 31A/
March 1891.*

TO WHOM SENT.	Wardian cases.	Boxes.	Number of plants.
Government House Garden, Calcutta	23
Belvedere Garden, Alipore	21
The Representative of the Government of Nepal	"4	31
The Hon'ble Nawab Asanullah Khan Bahadoor, C.I.E., Dacca	10	87
Royal Garden, Kew, London	2	56
Royal Botanic Garden, Peradeniya, Ceylon ...	"1	...	40

APPENDIX II—continued.

TO WHOM SENT.	Wardian cases.	Boxes.	Number of plants.
Botanic Garden, Saharanpur	18	380
Ditto, Darjeeling	2	65
Zoological Garden, Alipore	88
Horticultural Garden, Lucknow	2	30
Agri-Horticultural Garden, Lahore	17	229
Ditto, Calcutta	61
Sir George Macleay, Surrey- ...	1	...	8
Political Agent, Jeypore, Rajputana	4	107
Conservator of Forests, Sunderbuns	112
Superintendent of Forests, Penang ...	2	...	54
Forest Officer, Katikood	7	135
Port Officer, Calcutta	52
Officer Commanding the Garrison, Cbangsil ...	2	2	76
Chief Commissioner, Andamans	14	390
Commissioner of Orissa	4	100
Ditto, Burdwan	2	25
Deputy Commissioner of Hazaribagh	2	40
Subdivisional Officer, Feni	11	20
Ditto, Pakur	6	238
Ditto, Deoghux	8	121
Ditto, Kajmehal	2	180
Ditto, Naraingunge	35
Covenanted Deputy Collector in charge, Chitta-	3	50
gong	94	440
Settlement Officer, Western Duars	8	210
Secretary, District Board, Sarun	3L	691
Chairman, District Board, Noakhally	2	37
Ditto, Pooree	10	200
Ditto, Furreedpore	23	570
Ditto, Tipperah	8	198
Ditto, Dinaipur	6	135
Chairman, Local Board, Samastipur	5	104
Ditto, Jessore Municipality	4	90
Ditto, Khulna Municipality	1	21
Ditto, Kumarkhali Municipality	7	135
Vice-Chairman, Jamalpur Municipality	2	50
Ditto, Murshidabad Municipality	5	105
District Engineer, Khulna	5	105
Ditto, Jalpaiguri	25	470
Ditto, Backergunge	28	575
Ditto, Patna	14	- 345
Ditto, Ijohardugga	2	37
Ditto, Beerbhoom	1,000
Ditto, Midnapore	17	400
Ditto, Bhagalpur	02	2,000
Executive Engineer, Buxar Division	148
Superintendent, Foundry and Shell Factory	262
Cossipore	1,640
Superintendent, Calcutta Workshop Division	5	72
Ditto, Jalpaiguri Jail	2	28
Ditto, Alipore Jail	401
Ditto, Hazaribagh Jail	1	60
Ditto, Midnapore Jail	670
Ditto, Victoria Garden, Bombay ...	1	...	80
Ditto, Lai Bazar, Bangalore ...	1	1	40
Ditto, Mookhamcherra Tea Estate	1	160
Manager, Mookhamcherra Tea Estate	860
Ditto, Jute Mills, Seebporo	86
Surveyor-General, Calcutta	44
Deputy Postmaster-General, Lucknow	2	76
The Master of the Mint, Calcutta	8,042
Howrah Hospital	100
Medical College Hospital, Calcutta	10
Principal, Medical College, Calcutta	100
Befonnatory School, Alipore	29
La Martinière School, Calcutta	ISO
Christ Church Parsonage, Calcutta	886
St. John's Church, Calcutta

APPENDIX II—continued.

To WHOM SENT.	Wardian cases.	Boxes.	Number of plants.
JTowrah Church	12
Protestant Home, Calcutta]	12
Indian Museum, Calcutta	12
Heper Asylum, Calcutta	100
Assistant Registrar, Calcutta University	24
Board of Revenue, Calcutta	200
Soldiers' Gardens, Fort William	4,184
E. I. Railway, Howrah	2,400
E. B. State Railway, Sealdah	80	2,000
Earrackpore Park	68
Sulkeah Salt Golah	1,792
Bazar of the Little Sisters of the Poor	125
Bengal Mills, Garden Reach	26
Women's Charitable Society, Calcutta	20
Women's Friendly Society, Calcutta	812
Fancy Bazar for ditto ditto	50
The Hon'ble Sir Alfred Croft, K.C.I.E., Calcutta	6
Hon'ble C. B. Garrett, Calcutta	202
W. B. Bliss, Esq., Calcutta	1
Mrs. Apar, Calcutta	67
T. J. Ayres, Esq., Howrah	72
H. Bahr, Esq., Assam	8	188
lady Barbour, Calcutta	2
J. Benson, Esq., Seebpore	109
Mrs. A. Betts, Calcutta	38
Dr. S. Borah, Tezpur	2	BO
Mrs. Brühl, Engineering* College	38
R. Clare, Esq., Calcutta	100
W. B. Colville, Esq., Ballygunge	33
H. Cockell, Esq., Motiharry	63
H. Cowasji, Esq., Calcutta	9
Dr. D. D. Cunningham, Calcutta	39
Mrs. Day, Calcutta	205
„ H. Doran, Howrah	8
J. N. Eaton, Esq., Chakradharpore	53	1,300
Sir John Edgar, K.C.I.B., Calcutta	63
Captain Edge, S. S. JPeshwa	12
Mrs. Fiddian, Howrah	206
J. Fleming, Esq., Calcutta	220
G. Denison Foldger, Esq.	8	3J.
J. Gamxnie, Esq., Mungpoo	2	611
W. Graham, Esq., Calcutta	30
Dr. Griffiths, Allahabad	8	47
T. Grant, Esq., Sainthia	1	15
Captain Gray, S. S. Oify of Canterbury	««	16
W. GOBS, Esq., Rangamati	5	121
W. M. St. Clair Grant, Esq., Bhagalpur	4	100
A. M. Gasper, Esq., Moradabad	1	9
G. B. Groves, Esq., Dacca	8	34
H. E. Houghton, Esq., Dharwar	1	15
J. D. Kohus, Esq., Java ...	1	...	40
Mr. R. A. Lyall, Calcutta	2	1,429
Captain Long worthy, S. S. Abana...	12
D. Jjow, Esq., P. & O. Agent, Brindisi ...	1	...	28
Mrs. Mackenzie, Calcutta	21
E. H. Man, Esq., An dam an 8 ...	2	...	91
Captain Mann, S. S. JELeua	12
T. W. Man, Esq.	1
C. Maries, Esq., Gwalior	4	127
Mrs. Maxwell, Howrah	100
E. F. Mondy, Esq., Calcutta	297
G. H. T. Mayer, Esq., Cawnpore	3	67
Mrs. Morrison, Ghosery	1
M- Nahar, Esq., Azimguntge	1	16
A. C. Nairn, Esq., S. S. Nepal	186
P. Nolan, Esq., Alipore	820
G. W. Noal, Esq., Seebpore	150
J. D. Osmers, Esq., Calcutta	82
Graham Peddie, Esq., Madhupur, E. I. Railway	1	10

APPENDIX II—continued.

TO WHOM SENT.	Wardian cases.	Boxes.	Number of plants.
J. Pratt, Esq., Midnapore	4	85
R. Pantling, Esq., Mungpoo	1	81
G. McD. Peche, Esq., Moulmein	1	17
J. Phillips, Esq., Allahabad	15	294
P. Play fair, Esq., Alipore	6
Mrs. Prain, Kurseong	10	347
Chief Commissioner, Andamans ...	1	2	68
Charles Ross, Esq., Seebpore	285
W. Reeves, Esq., Sylhet	1	20
— Simmons, Esq., Calcutta	2
Dr. Simpson, Calcutta	1,527
Mrs. Simpson, Calcutta	6
A. Simson, Esq., Calcutta	15
J. S. Slater, Esq., Seebpore	791
Charles Stiffe, Esq., Calcutta	6
E. Trelawny, Esq., Calcutta	342
Colonel R. Warburton, Peshawar	2	23
JDr. C. J. Warden, Alipore	100
Colonel Waterhouse, Calcutta	4
T. Watson, Esq., Calcutta	1
Mrs. E. V. Westmacott, Calcutta	1
Herbert Winn, Esq., Belvedere, Chunar	2	36
J. V. Woodman, Esq., Rangamati	1	8
Messrs. Gillanders, Arbuthnot & Co., Calcutta	4,400
„ Kilburn & Co., Calcutta	12
„ T. J. Barr & Co., Calcutta	3,500
„ F. Sander & Co., St. Albans	*9	3,031
River Steam Navigation Company, Limited, Garden Reach	100
Prince Nooroodeen Khan, Russapagla	2
Babu A. B. Moitra, Santipore	1	3
„ A. C. Chowdhury, Sulkeah...	2	1(5
„ A. K. Bose, Helgoriah	28
„ A. N. Bose, Calcutta	10
„ A. C. Banerjee, Cossipore	1
„ B. M. Paramanick, Burdwan	200
„ B. B. Gangooly, Krishnagar	2	7
„ B. Mookerjee, Hazaribagh	1	15
„ B. Ghosh, Taki	310
„ D. N. Basu, Seebpore	127
„ X> N. 1-Sajerjee, Calcutta	9
„ G. C. Datta, Seebpore	233
„ G. C. Gupta, Calcutta	1L
„ G. C. Barral, Krishnagar	3
„ J. C. Pal, Calcutta	1	175
„ J. N. Chowdhury, Seebpore	3
„ J. C. Biswas, Calcutta	603
„ J. N. Banerjee, Seebpore	2
„ J. N. Mullick, Calcutta	1
„ J. P. Gupta, Nashipur	I	6
„ K. P. Nu*ker, Thana Makooah	100
„ K. M. Mookerjee, Calcutta	16
„ K. P. Chowdhury, Seebpore	60
„ M. ID. Dey, Burdwan	46
„ M. XI. Mundul, Kidderpore	100
„ IN. M. Bhattacharjee, Majirhat	20
„ N. II. Nusker, Thana Makooah	100
„ P. R. Maity, Nazirgunge	4
„ P. C. Banerjee, Hanaghat	1	23
„ R. N. Porail, Midnapore	5
„ R. C. Roy, Kanchi	*3	22
„ S. C. Koy, Goneshpur	6
„ S. N. Roy, Calcutta ft	10
„ S. P. Chatterjee, Calcutta	545
Chowdhury Mahadeo Prosad, Nanpur	*4	100
Sibsanker Prosad, Gya	1	3
Soorjoo Den Narain Sing, Balegurnh	1	44
Hernam & ass, Garden Reach	8
Nonidh Roy, Mozufferpore	4

APPENDIX II—concluded.

TO WHOM SENT.	Wardžan cases.	Boxes.	Number of platfts.
Nunda Kissore Dass, Gya	5	100
Badul Khan, Ghoshpur	14
Shaik Gobordhun, Trishbiga	175
Hurry Malie, Manicktollah	2
Ishan Chandra Malie, Calcutta	8
M. S. Muntaz Ali, Saharanpur	2	16
Morfoodul Hock, Calcutta	5
Musseebullah Chuprassie	6
Dewan Mallie, Thana Makooah	43
Shadir Mallie, ditto	20
Shaik Soobid Mallie, ditto	5
„ Solomon, ditto	12
Total	13	710	55,204

APPENDIX III.

Statement shotting seeds received from 1st April 1890 to 31st March 1891.

FBOM WHOM RECEIVED.	Number of parcels or packets.
W. T. Thiselton Dyer, Esq., p.S.s., c.ic.G., Director, Royal Garden, Kew, London	10
Dr. Repel, Imperial Garden, Si. Petersburg, Russia	111
Royal Botanic Garden, Peradeniya, Ceylon	21
Botanic Garden, Trinidad	10
Ditto, British Guiana	5
Ditto, Adelaide	50
Ditto, Melbourne	21
Ditto, and Domain Garden, Melbourne	25
Ditto, Port Darwin	19
Ditto, Hobart Town	50
Ditto, Rockhamoton	7
Ditto, Buitenzorg, Java	77-
Ditto, Singapore	1L
Ditto, Mauritius	9
Ditto, Saharanpur	28
Ditto, Darjeeling	742
Ditto, Bangalore	96
Ditto, Ootacamund	2
George H. T. Mayer, Esq., Memorial Garden, Cawnpore	1
Baron Ferdinand Von Mueller, CB 8., Melbourne, Australia	10
W. Anderson, Esq., Townsville, Queensland	16
F. M. Bailey, Esq., Brisbane	5
T. R. Cupps, Esq., Belu, Chumparun	1
Messrs. Dammann and Co., San Giovanni, Italy	149
Manager, Queensland Acclimatization Society, Brisbane	12
C. Curtis, Esq., Forest Department, Penang	3
Secretary to the Agri-Horticultural Society of India, Calcutta	10
Ditto ditto, Madras	4
Superintendent, Agri-Horticultural Garden, Lahore	121
Ditto ditto, Teynampett, Madras	1
Conservator of Forests, Northern Circle, Madras	3
Ditto, Burma	5
Forest Officer, Poona	1
Asiatic Society, Bengal, Calcutta	1
Economic Museum, Calcutta	1
G. Bartlett, Esq., Calcutta	2
J. Gammie, Esq., Mungpoo	4
Dr. George King	19
J. L. Lister, Esq., Kalimpong	7
E. H. Man, Esq., Port Blair ... ..	...
W. Pigot, Esq., Calcutta	J
Dr. David Prain, Great Coco Island	4
Baboo B. Ghosh, Taki	2
Munshi Abdool Hok, Plant Collector	20
Total	1,714

APPENDIX IV.

Statement showing seeds distributed from the Royal Botanic Garden during the year 1890-91.

To WHOM SENT.	Number of parcels or packets.
W. T. Thiselton Dyer, Esq., F.B.S., C.H.G., Director, Royal Garden, Kew, London ...	233
Sir J. D. Hooker, K.C.S.I., C.B., F.B.S., &c., The Camp, Sunningdale, London ...	72
Botanic Garden, Cambridge ...	10
Ditto, Edinburgh ...	175
Ditto, Brisbane, Queensland ...	1
Ditto, Adelaide ...	1
Ditto, Ballarat, Australia ...	1
Ditto, Melbourne ...	24
Ditto, Port Darwin ...	10
Ditto, Rockhampton ...	3
Ditto, Hobart Town, Tasmania ...	1
Ditto, Buitenzorg, Java ...	5
Ditto, Hongkong ...	13
Ditto, Trinidad ...	6
Ditto, Singapore ...	2
Ditto, Feradeniya, Ceylon ...	2
Ditto, Saharanpur ...	55
Ditto, Darjeeling ...	360
Ditto, Ootacamund ...	3
Ditto and Domain Garden, Melbourne... ..	1
Zoological Garden, Melbourne ...	1
Victoria Garden, Bombay T.. ..	2
Memorial Garden, Cawnpore ..	5
Private Secretary to His Excellency the Viceroy ...	76
Military Secretary ditto ditto ...	43
M. Edward Guillaume, Paris ...	31
Sra. Maria de Morgans, Malaga, Spain ...	40
Secretary to the Agri-Horticultural Society of India, Calcutta	8
Ditto ditto, Madras	3
Superintendent, Agri-Horticultural Garden, Madras ...	3
Ditto, ditto, Lahore ...	3
Ditto, ditto, Lucknow ...	25
Ditto, Bhagalpur Jail ...	1
Ditto, Intermediate Jail, Bogra ...	1
Ditto, Central Jail, Midnapore ...	1
Ditto, Jail, Chittagong ...*	1
Ditto, Jail, Maimensing ...	2
Ditto, Jail, Rungpur ...	1
Ditto, Owalior State Garden, Gwalior ...	29
Sir A. J. Arbuthnot, K.C.S.I., India Office, London ...	33
Signor T. Arcangeli, Italy ...	-3
C. B. S. Bosanquet, Esq., Northumberland ...	28
C. Curtis, Esq., Penung ...	3
D. Picton Davies, Esq., C.E., Quetta ...	1
The Hon'ble and Revd. W. C. Ellis, Northumberland ...	23
A. Forbes, Esq., Morken, Aberdeen ...	58
Signor T. H. Anbury, F.L.S., La Mortara, Italy ...	148
W. G. Head, Esq., Crystal Palace, London ...	3
Mr. Robert Hindmarsh, Northumberland ...	53
Joseph Hughes, Esq., Townsville, Queensland ...	1
James Inglis, Esq., Sydney, Australia ...	4
Mrs. Irvine, Drum Castle, Aberdeen ...	25
H. C. Levinge, Esq., Knockdrin Castle, Ireland ...	1
Baron Ferdinand von Mueller, F.B.S., Melbourne ...	1
Dr. G. Niven, Didbury, Manchester ...	37
Revd. C. M. Pakenham, Longford Lodge, Ireland ...	2
Tindal P. Porter, Esq., Brisbane, Queensland ...	200
David Prain, Esq., Fettercairn, Scotland ...	50
Colonel C. E. Stewart, Tabreez, Persia ...	28
W. Thomson, Esq., England ...	49
G. F. Wilson, Esq., Heatherbank, England ...	117
Messrs. J. C. Hachtler & Co., Allahabad ...	1
„ Dammann & Co., San Giovanni, Italy ...	25
„ Begg, Dunlop & Co., Calcutta ...	3
„ Hugh, Low & Co., London ...	1
„ Williamson, Alagor & Co., Calcutta ...	6
Mews. Stanley Price & Co., Calcutta ...	172
Messrs. J. A. Sander & Co., St. Albans, England ...	8
„ E. B. William and Brother, Heneratgoda, Ceylon ...	1
Extra Assistant Commissioner, Jowai, Assam ...	1

APPENDIX IV—*concluded.*

To whoif SENT.		Number of parcels or packets.
Conservator of Forests, Northern Circle, Madras ...	...	26
District Forest Officer, South Malabar, Nilambur ...	..	5
Forest Officer in charge Chittagong Division, Chittagong ...	...	83
District Engineer, Rungpur ...	...	1
"Executive Engineer, A ska, G an jam ...	...	6
Officiating Collector of Purneah ...	...	20
Consul-General for France, Calcutta ...	...	1
Garrison Quarter Master, Fort William ...	...	60
General Officer Commanding, Mandalay ...	...	53
Inspector of Salt and Abkari Revenue, Ganjam ...	...	1
Political Agent, Abu, Rajputana ...	...	13
Political Resident, Turkish Arabia, British Residency, Bagdad ...	...	20
H. liabr, Esq., Son thai Colony, Dhubri ...	...	91
T. E. Carter, Esq., Dacca Hail way ...	...	6
Captain F. O. B. Campbell, Jhansi ...	...	3
Dr. Cunningham, Calcutta ...	...	1
M. Finucane, Esq., c.s., Calcutta ...	...	1
J. Gammie, Esq., Mungpoo ...	...	104
Dr. Glynn Griffith, Allahabad "	...	1
H. A. Herbert, Esq, Calcutta ...	...	1
Mrs. Hodges, Monywa, Chindwin ...	...	25
Captain Linsell, Andamans ...	...	10
C. P. Lloyd, Esq., The Buffs, Dum-Dum ...	...	2
James C. Kelly, Esq., Forest Department, Tezpur ...	...	63
D. McL. Morrison, Esq., Calcutta ...	...	12
T. F. Peppe, Esq., Ranchi ...	...	29
A. A. Phiibert, Esq., Meiktila ...	...	1
Sirs. Prain, Kurseong ...	...	1
Colonel D. Robertson, Shillong- ...	...	1
Captain J. G. Robinson, Dehra Dun ...	...	15
lieutenant Tullock, Fort William ...	...	9
Thomas \yardle, Esq., Leek, England ...	...	1
Dr. C. J. H. Warden, Medical College, Calcutta ...	...	1
M. R. Weld, Esq., c s., Kurnool ...	...	52
Brigadier-General Wolsley, c.B., Mandalay ...	...	6
Xiouis Zindug, Esq., Calcutta ...	...	12
Rajah Ram Narain Singh, Khaira, Jamooee ...	...	1
Babu A. C. Banerjee, S.M.S., Allahabad ...	...	3
„ N. C. Dey, Seebpore ...	...	1
„ N. G. Sein, Seebpore ...	...	6
„ P. B. Dutt, Calcutta ...	...	8
„ P. C Saha, Calcutta ...	...	7
Munshi Ali Hosan, Chaidpur ...	...	18
Total ...	...	3,132

APPENDIX V.

List showing contributions to the Herbarium during 1890-91.

From Royal Herbarium, Kew—

Dr. Henry's Chinese collection	...	...	• ...	2,532
Dr. Henry's Chinese duplicates	...	...	...	312
Ball's Ferns about	...	...	600	
Monro's grasses about	...	...	1,000	
				<hr/> 1,600
Vidal's Manilla plants	...	...	...	109
Burbidge's North Borneo plants	...	...	...	13
Balansa's Tonquin plants	...	...	...	192
Duplicates of Air. C. B. Clarke's Herbarium	...	...	...	740
Duplicates of the late Dr. Wight's Herbarium	...	...	...	665
Duplicates from Mr. Duthie's Central India collection	...	...	...	97
Duplicates of grasses collected by Dr. Lawson at Ootacamund	...	...	...	45
				<hr/> 6,311

Royal Botanic Garden, St. Petersburg ; Central Asian plants of

Przewalski's and Potanin's journeys	...	...	...	1,150
Baron Von Mueller, K.C.M.G., F.B.S., Melbourne, Australia'	...	...	...	761
Mr. Ridley, Botanic Garden, Singapore	...	...	...	845
Dr. Trimen, F.B.S., Botanic Garden, Pcradeniya	...	...	...	14
Mr C. Maries, Gwalior	...	...	...	126
Mr. J. S. Gamble, Dehra Dun	...	...	...	83
Dr. Barclay, Simla	...	...	...	22

Dr. Leslie's Burma collectors—

Mr. ColeatYeu	...	...	...	50
Mr. Cooper at Bernardmyo	...	...	...	90
				<hr/> 140

Dr. Watt (duplicate *Labiatae*)

Mr. Talbot, Forest Department, South Canara	...	...	...	24
Mr. Lace's Beluchistan plants	...	...	...	55
				<hr/> 450

From the Saharanpur Herbarium—

Plants collected by Lieutenant Hunter on West Punjab Frontier	...	...	...	99
Ditto <i>Labiates</i> (duplicates) and a few Central Indian plants	...	...	...	76
				<hr/> 175

Mr. Curtis, Forest Department, Penang	...	...	...	395
Mr. Wray, Perak	...	...	...	853
Mr. Pringle (Mexican plants)	...	...	...	683
Mr. G. Mann, Shillong (5 sets of bamboos, each 186 species)	...	...	...	930
Mr. G. Mann, Magnoliacero, etc.	...	...	...	854
				<hr/> 1,284

Mr. W. W. Waine, Assistant Conservator of Forests, Sikkim

Mr. S. E. Peal, Sibsagar "	...	...	...	21
General Collett, C.B., Shillong	...	...	...	210
General Gatacre, C.B., Shan States	...	...	...	304
				<hr/> 127

Garden collectors <=>

Dr. King; Andamans' journey	...	...	• ...	690
Ditto; Khasia do.	...	...	...	270
				<hr/> 960
Dr. Prain ; Great Coco journey	...	...	...	1,288
Mr. E. H. Man, Andamans, about	...	...	...	1,800
Mr. Prazer	...	...	...	350
Abdool Hok	...	...	...	1,100
Babullah (with Lieutenant Colomb)	...	...	...	200
Mr. G. Mann's Khasia collectors about	...	...	...	500
Mr. G. Gammie, Sikkim plants	...	...	...	585
				<hr/> 5,885

Total ...

20,816

G. KING, M.B., *Brigade-Surgeon,*
Superintendent, Royal Botanic Garden, Calcutta.

FINANCIAL DEPARTMENT

MISCELLANEOUS.

No. 2069.

DARJEELING, 18TH JUNE 1891.

RESOLUTION.

READ—

The Annual Report of the Botanic Garden, Calcutta, for the year 1890-91.

The Report for the year shows that steady progress has been made in improving the Botanic Garden, not only as a scientific centre of the highest value to all botanical students, but also as a pleasurable and instructive resort to the public. More than 20,000 specimens were added to the Herbarium, illustrating the Flora of regions so widely removed as Central Asia, Australia, Assam, Perak, the Shan States, the Khasi Hills, the Andaman Islands, and the Great Coco Island. To the contributors of these specimens, Messrs. Mann, Lace, Gamble, Curtis, Ridley, S. Peal, and L. Wray, Generals Collett and Gatacre, and Baron von Muller, the thanks of Government are due. Arrangements were also made for continuing the work of collection in Assam, Upper Burma, and the Andamans.

2. A third volume was added to the interesting series of garden annals, containing monographs by Dr. King and Dr. Prain on certain Indian and Indo-Malayan species. Unfortunately, however, owing to unavoidable delays, it was found impossible to publish the volume within the year. Both the Superintendent and the Curator of the Herbarium also contributed valuable papers on botanical subjects to the Journal of the Asiatic Society.

3. The Lloyd Botanic Garden in Darjeeling, which is under Dr. King's supervision, is reported to be in good order. Under recent arrangements the Curator of this garden is charged with the task of improving the station of Darjeeling by planting and looking after young trees. In course of time it is hoped that the damage done in past years by the wanton destruction of fine trees may be in some measure repaired.

4. The thanks of the Lieutenant-Governor are due to Dr. King, the Superintendent, and Dr. Prain, the Curator of the Herbarium, for the successful administration of the garden during the year.

OBDEB.—Ordered that a copy of this Resolution, and of the Report, be submitted to the Government of India, in the Revenue and Agricultural Department, for information.

Ordered also that a copy of this Resolution be forwarded to the Superintendent of the Botanic Garden for information.

By order of the Lieutenant-Governor of Bengal,

H. H. RISLEY,

Offg. Secy, to the Govt. of Bengal.

No. 2970.

COPY forwarded to the Superintendent of the Royal Botanic Garden, Calcutta, for information.

By order of the Lieutenant-Governor of Bengal,

H. C. STREATFEILD,

Undersecretary to the Government of Bengal.

CALCUTTA,

Th 26th June 1891.*

FINANCIAL DEPARTMENT.

MISCELLANEOUS.

CALCUTTA, THE 29TH JUNE 1892.

RESOLUTION—No. 2211.

READ—

The Annual Report of the Royal Botanic Garden, Calcutta, for the year 1891-92.

The report shows that the year has been one of great activity as regards outdoor operations, and that much has been done to improve the condition of the driving roads in the garden, which were referred to in last year's report as requiring attention. The season was abnormally dry; and though in the conservatories but little damage was done, it is to be regretted that out of doors, despite the exertions of the garden staff, many casualties occurred especially among the finer and rarer palms. Valuable additions were made to the Herbarium, among which may be mentioned a rich collection of plants from Kew, a beautiful collection of Australian plants from Baron Von Müller, and collections from the north-west Himalayas, Jaunsar-Bihdr, Dohra Dun, the Malay Peninsula, North Canara, Sindh, Chota Nagpur, Khasia Hills and Manipur, Upper Burmah and Assam, the Duars, Independent Sikkim and Laccadive Archipelago. The contributors of these specimens, Messrs. Lace, Gamble, Ridley, Peal, Hoawood, Talbot, General Sir H. Collett, Captain Fulton, and Drs. Waddell, Cooke, Wood and Alcock, the thanks of Government are due. Dr. Prain visited the Andaman Islands, Parasnati, and the Khasia-Jaintia Hills; and his botanical explorations, as well as those of Collectors employed by the Calcutta garden, have added some valuable collections. During the year the third volume of the garden annals was issued, and the bulk of the material for the fourth volume, containing a monograph by Dr. King on the important family of *Anonaceae* was prepared. Both Dr. King and Dr. Prain continued to contribute valuable papers on botanical subjects to the Journal of the Asiatic Society of Bengal.

2. The Royal Botanic Garden in Darjeeling was visited in July last by flights of locusts, which caused at the time considerable damage to the plants. The mischief was, however, speedily repaired, and the garden is now reported to be in excellent order.

3. The thanks of the Lieutenant-Governor are again due to Dr. King, the Superintendent, and Dr. Prain, the Curator of the Herbarium, for their successful administration of the garden during the year.

ORDER.—Ordered that a copy of this Resolution, and of the Report, be submitted to the Government of India, in the Revenue and Agricultural Department; for information.

Ordered also that a copy of this Resolution be forwarded to the Superintendent, Royal Botanic Garden, for information.

By order of the Lieutenant-Governor of Bengal,

H. II. RISLEY,

Offg. Secretary to the Govt. of Bengal.

No. 2212.

COPY forwarded to the Superintendent of the Royal Botanic Garden for information.

By order of the Lieutenant-Governor of Bengal,

H. J. McINTOSH,

Offg. Under-Secretary to the Govt. of Bengal.

CALCUTTA,

The 30th June 1892.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN, CALCUTTA, FOR
THE YEAR 1801-92.

No. 21G., dated Sibpur, the 11th. May 1892."

From—SURGEON D. PRAIN, M.B., F.R.S.E., Acting Superintendent, Royal Botanic
Garden, Calcutta,

To—The Secretary to the Government of Bengal, Financial Department.

I HAVE the honour to submit herewith the one hundred and fifth Annual
Report of the Royal Botanic Garden.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN, CALCUTTA, FOR THE
YEAR 1891-92.

THE year under review has been one of great activity as regards outdoor operations. Another supplementary grant having been allotted by Government for the purpose of improving the condition of those driving roads adverted to in the Annual Report for 1890-91 as still in need of alteration, the attention of the outdoor staff has been mainly devoted to road work in the Palmetum, where it has been possible to replace the old path that connected the Howrah gate and the College gate entrances of the garden by a good driving road on a new and proper alignment, and to remake the approach leading from the College gate entrance to Colonel Kyd's monument. The latter undertaking was rendered necessary by the fact that this approach, one of the finest avenues in the garden, and the road that must, after the completion of the new drive along the river bank from Howrah, be the principal means of access to the centre of the garden, could not hitherto, owing to its low level, be used with comfort or even safety during the rains. The necessary alterations have involved a good deal of earth-cutting, and advantage has been taken of this to considerably enhance the appearance of the large Palmetum lake. Much remains to be done to bring the older roads in the garden into the excellent condition of the newer ones that have been aligned by Dr. Kin£, what is chiefly required being the adjustment of their levels to admit of free surface-drainage, and at the same time to obviate scouring during the rains. But none of the work now left to be done is so formidable as that of the past year; practically all the earth-cutting necessary for the roads in the Palmetum at least has been completed. Still further improvements were effected along the river-bank, advantage being taken of the unusually low tides that prevailed during the months of February and March to repair and strengthen places that in ordinary seasons are inaccessible. The conservatories are in a satisfactory condition, and though some of the palms have suffered from the extreme drought of the early part of 1892, it has been possible to bring the plants under their shelter through a trying Season with few actual losses to record. The orchid display was by no means equal to that of the last five or six seasons; though the plants commenced flowering very early, and though those that flowered first were even finer than usual, the conditions to which they were subjected during February and March rendered the blossoms of all the later flowering species small and few. Out of doors the abnormal season has proved very trying to many exotics, and though for a time all other work was suspended and the whole garden staff was employed only in watering plants, many casualties have unfortunately occurred, specially among the finer and rarer palms. But though it has been impossible to save all the individuals, it has fortunately been possible by devoting especial care to the stronger ones to preserve alive some representatives of nearly every species in the garden.

2. *Economic plants.*—»The attention of the staff has been as usual largely directed to the cultivation and distribution of plants of economic interest. The chief event of the year under this head has been the introduction of the aloe which yields "sisal hemp" (*Agave rigida*, var. *Sisalana*). The Director of the Royal Gardens, Kew, in June 1891 kindly obtained a consignment of plants for

the Calcutta Garden from Florida and kept these at Kew till they were strong enough to stand the voyage to Calcutta. The boxes reached Calcutta on 29th October 1891; unfortunately a considerable percentage of the plants died on the way out, and it has been necessary to nurse the survivors carefully before venturing to distribute them. They are now being distributed; as usual in such cases, the garden authorities are being assisted by the Agri-Horticultural Society of India, which heartily co-operates in bringing plants of this kind to the notice of the public and in furthering their distribution especially among the planting community.

3. *Herbarium*.—The work in this department was of the usual description. Over 19,000 specimens were contributed to the Herbarium during the year from various sources; while the distribution of authentically-named specimens to other herbaria reached the high total of 10,505 sheets. The precise details of these accessions and of the distribution are shown in two of the appended lists. The chief benefactor to the Calcutta Herbarium has again been the Royal Herbarium, Kew, to the Director of which institution the Calcutta one owes a debt that can never be repaid. Baron Von Mueller has again "contributed a beautiful collection of Australian plants; the Herbarium has been greatly enriched by further accessions of Tibetan, Chinese, and Mexican specimens; the Saharanpur Herbarium has presented 954 plants from the North-West Himalaya; Mr. J. H. Laco has sent a contribution of 627 specimens from the same region; Mr. J. S. Gamble has sent 256 from Jaunsar-Bihdr and Dehra Dun. Mr. H. N. Ridley, Director of the Singapore Garden, has sent 498 specimens from the Malay Peninsula, mainly from the recently explored province of Paliang; General Sir H. Collett, K.C.B., has again befriended the Herbarium by sending some interesting plants from Khasia and Manipur; Dr. L. A. Waddell has contributed some specimens from the more remote valleys of Independent Sikkim; Captain Fulton has sent some specimens from Upper Burma; Mr. S. E. Peal another collection from Upper Assam; Dr. J. J. Wood a very complete collection from Chota Nagpui; Mr. W. A. Talbot another interesting collection from North Canara; Dr. T. Cooke, C.I.E., "some interesting specimens from Scinde, and Mr. Heawood a small collection from the neighbourhood of the Son thai Colony in the Duars. One of the most interesting contributions of the year has been a very carefully made and complete collection of the plants of the little visited Laccadive Archipelago, sent by Dr. Alcock, Surgeon Naturalist of Her Majesty's Indian Marine survey steamer "Investigator". The chief recipients of distributed specimens have been the "officers in charge of the great national herbaria; in the United Kingdom sets have been presented to the Royal Gardens, Kew, the British Museum, the Royal Botanic Garden, Edinburgh, the Universities of Cambridge and of Aberdeen and Owen's College, Manchester; in India and the East to the Herbaria at Saharanpur; Madras (Government Central Museum); Poona (College of Science); Dehra Dun (Imperial Forest School); Royal Botanic Garden, Peradeniya, Ceylon; Singapore (Botanic Garden); Perak (Government Museum); Penang (Forest Department); Straits Settlements, Royal Botanic Garden, Buitenzorg, Java; University Herbarium, Melbourne, Australia. The chief foreign recipients besides the famous kindred Dutch institution in Java have been the Smithsonian Institution, Washington; the Imperial Gardens, St. Petersburg; the National Botanical Museums in Berlin, Vienna, Paris, Florence, and Leiden; the University Herbaria of Vienna, Utrecht, and Upsala, and the great Herbarium of M. de Candolle at Geneva.

4. *Botanical collection*.—During the year full advantage was taken of the various opportunities offered for the botanical exploration of the provinces allotted to the Superintendent of the Royal Botanic Garden, Colonel T. Cadell, v.c., Chief Commissioner of the Andamans, whose assistance has already had so often to be acknowledged, having invited Dr. Prain to revisit Port Blair in connection with the botanical exploration of his province, and Dr. King having permitted the visit, Dr. Prain proceeded to Port Blair in March 1891. The station steamer, Her Majesty's Indian Marine steamer *Nancowry*, having been placed at his disposal by Colonel Cadell, Dr. Prain was enabled to visit and investigate the flora of Karcondam, Barren Island, Little Andaman, Car-Nicobar, and Batti Mulv—all these, save Car-Nicobar, being places never before botanically investigated. Mr. E. H. Man has again most kindly superintended the collection of

specimens in the neighbourhood of Port Blair by Burmese convicts. In November 1891, Dr. Prain visited Mount Parasnath and made a botanical tour in Chota Nagpur, while in March 1892 he was directed to make a botanical tour in the Khasia, and more particularly the Jaintea Hills. This tour was in connection with the botanical survey of Assam and Burma, towards which the Government of India and the local Governments of Burma and Assam give annual grants. In connection with this survey also Mr. Proudlock, Curator of the garden, was sent in February 1892 on a collecting tour to Tenasserim, Tavoy, and Mergui. In Assam two native collectors were at work in the Naga Hills for the greater part of the year; latterly they collected on the Lushai frontier; the recent troubles in this region have unfortunately as yet prevented Mr. McCabe from taking the men into the interior of the Lushai country, and personally supervising their work, as he has most kindly volunteered to do. From Burma, besides the Tenasserim and Mergui collections, other collections have been received from the garden collector, Abdul Hok, who has been at work in the Shan Hills and the Ruby Mine districts; some specimens have also been received from frontier stations under the arrangement mentioned in last year's report as having been kindly made by Dr. Leslie.

5. *Publications.*—During the year the third volume of the *Garden Annals* was issued, and the greater part of the fourth volume, which is to consist of a monograph by Dr. King of the difficult and important family of *Anonacece*, has been elaborated. Besides this Dr. King has also continued his series of papers on the Malayan Flora, part 3 (dealing with the natural orders *Malvaceae*, *Sterculiaceae*, and *Tiliaceae*) having been published in the beginning of the year, while part 4 (dealing with *Anonacece*) is, at its close, in the hands of the printer. These papers are published in the *Journal* of the Asiatic Society of Bengal. In the same *Journal* two descriptive papers—on a new species of *Jurpetia* and on two new species of *Glyptopetalum*—have been published by Dr. Prain, who has in the same place published the account of the *Vegetation of the Coco Group*, referred to as in preparation when the last Annual Report was submitted. The Asiatic Society has also published Dr. Prain's account of the botanical results of his visits to Little Andaman and the Nicobars.

6. *Library.*—Some new books have been purchased; others have been presented to the Library; a good number of old ones have been rebound. Perhaps the most interesting occurrence in connection with the Library has been the acquisition of a portrait of Colonel Robert Kyd. Learning that a portrait of this distinguished soldier was in the possession of the Agri-Horticultural Society, the Curator of the Herbarium, with Dr. King's permission, asked the Society to be allowed to have it copied for the Library of the Royal Botanic Garden. The President and Council having very cordially granted this request, a copy of the original, carefully executed in the Government School of Art, has now been completed, and a portrait of the gentleman who in June 1786 suggested to the Honourable the Board of Directors "the propriety of establishing a Botanic Garden," and who performed the duties of Honorary Superintendent here from August 1786, when the undertaking was commenced, till his death in 1793—an officer described by the Honourable the Court of Directors in the letter in which, in 1787, they sanctioned the action of the Honourable Board in the previous year, as one "who, by the attention he has shown to a matter which may one day prove of the greatest benefit to his constituents and to his country, stands most deservedly high in our esteem and favour,"—at length hangs in the museum of the institution with which his name is so intimately associated.

7. *Interchange of plants and seeds.*—The distribution lists attached to this report show that during the year 14,251 plants were received and 46,435 plants were distributed, while of seeds 1,580 packets were received and 2,972 packets were distributed, the recipients both of plants and seeds being, as is usual, nearly all public officers.

8. *Lloyd Botanic Garden, Darjeeling.*—This garden was throughout the year under the charge of Mr. W. A. Kennedy, and was in excellent condition till 19th July, on which date locusts appeared in huge flights; the day of their arrival happened unfortunately to be a Sunday, when no coolies could be obtained, and the creatures could not be kept flying; much destruction was done, in some parts of the garden nothing but bare soil being left.

Thanks, however, to Mr. Kennedy's energy and care, the damage committed was wonderfully quickly remedied, and long before the close of the year the garden had again been brought into a state of excellent order.

9. The sums provided in the budget for the maintenance of the gardens both at Calcutta and Darjeeling were utilized in full; indeed, owing to the Accountant-General having found it necessary to charge directly against the garden budget allotments the cost of and freight on Europe stores sent by the Secretary of State from England, there will be a small technical deficit. This is the first occasion on which these charges have been directly deducted from the budget allotments; as no intimation that the step would be necessary was made by the Accountant-General till 11th March 1892, and as a statement of the full amount of the charges under this head was not communicated by him till 28th April 1892 (after the financial year had closed), it was impossible to apply to Government for an additional grant to meet the charges under this head before the close of the financial year, and equally impossible to regulate the expenditure for the year so as to meet the charges under this head from the existing allotment. The steps necessary for the adjustment of the accounts are now being taken. The revenue of the Darjeeling garden fell short of the estimate by Rs 42—a circumstance altogether to be accounted for by the visitation of locusts; the revenue of the Calcutta garden, on the other hand, somewhat exceeded the estimated receipts for the year.

10. Br. King, Superintendent of the Garden, was absent on privilege leave for two months and 26 days from 15th July; during his absence the duties of Superintendent were performed by Dr. Prain in addition to his own as Curator of the Herbarium. Mr. R. L. Proudlock has been Curator of the Garden during the year; Mr. G. T. Lane has been Assistant Curator; both officers have worked well, as has the Head Clerk, Babu G. C. Datta, and the office staff under him.

11. Six appendices are attached, which show the issues and receipts of seeds, the issues and receipts of plants, and the accession and distribution of herbarium specimens.

APPENDIX I.

Statement, showing plants received from 1st April 1891 to 31st March 1892.

FROM WHOM RECEIVED.	War-dian cases.	Boxes.	Number of plants.
Royal Gardens, Kew, London ...	3	2	1,140
Royal Botanic Garden, Peradeniya, Ceylon ...	1	...	36
Botanic Garden, Durban, Natal ...	...	...	32
Ditto, Trinidad ...	...	1	15
Ditto, Buitenzorg, Java ...	2	...	96
Ditto, Saharanpur ...	...	1	677
Ditto, Darjeeling ...	2	27	3,860
Ditto, Bangalore ...	...	...	52
Victoria Garden, Bombay ...	3	...	77
Memorial Garden, Cawnpore ...	...	1	93
William Bull, Esq., F.L.S., Chelsea, London ...	...	1	43
Messrs. H. Low and Sons, Clapton Nursery, London ...	...	1	24
Messrs. F. Sander & Co., St. Albans, England ...	1	...	24
Agri-Horticultural Society, Calcutta ...	...	...	1
Ditto ditto, Lahore ...	...	7	347
Ditto ditto, Madras ...	...	...	700
Ditto ditto, Rangoon ...	...	...	3
M. Ridley, Esq., Government Agricultural Garden, Lucknow ...	...	...	500
La Martinière School, Calcutta ...	...	...	2
Gwalior State Garden ...	...	...	410
Oossipore Practical Institution ...	...	...	7
R. Rose, Esq., Deputy Postmaster-General, Lucknow ...	...	...	560
C. A. B. Anderson, Esq., Kolabari ...	...	...	45
G. W. Bartlett, Esq., Calcutta ...	...	...	2
R. M. Blarney, Esq. ...	...	...	3
W. Boxall, Esq., Mandalay ...	...	1	254
Captain Elcote of the S.S. Victory ...	...	...	1
J. Gammie, Esq., Mungpoo ...	...	6	579
Hon'ble C. B. Garret, c.s., Calcutta ...	...	...	1
T. C. Huxley, Esq., Peradeniya ...	1	...	30
J. L. Listen Esq., Bhutan ...	...	1	176
Lieutenant E. J. Lugard, B.S.C. ...	...	1	3
E. H. Man, Esq., Port Blair ...	2	4	242
Linel.de Niceville, Esq., Calcutta ...	...	...	1
R. Pantling, Esq., Mungpoo ...	...	1	7
J. Parkes, Esq., Bhutan ...	...	...	355
G. Mo. D. Peohe, Esq., Moulmein ...	...	...	343
F. Schiller, Esq. ...	...	...	1
Mr. O. J. Simons, Assam ...	1	...	15
J. S. Slater, Esq., Engineering College ...	...	...	65
Walter Stiefelhausen, Esq., Assam ...	...	...	...
Colonel Waterhouse, Calcutta ...	...	...	1
G. Marshall Woodrow, Esq., Poona ...	...	...	902
Collected by Dr. George King, C.I.E., at Teendaria ...	...	...	1
Collected by Dr. David Prain, at Andamans ...	1	...	63
Ditto by Mr. K. L. Proudlock at Mungpoo, Dum-Dum, and Tenasserim ...	...	...	218
Ditto by Abdul Hok at Burma ...	...	3	337
Ditto by Babooullah Jharami at Andamans ...	...	...	558
Ditto by Jameeruddy Maliee at Burdwan ...	...	...	26
Babu Soorjoo Deo Narain Singh, Balegarh ...	...	5	31
S. P. Chatterjee, Calcutta ...	...	1	638
Shaik Sadar Maliee, thin a Makooah ...	...	...	43
Unknown donors ...	...	1	607
Total ...	17	65	14,251

APPENDIX II.

*Statement showing plants sent out from 1st April 1891 to &st
March 1892.*

To WHOM SENT.	War- dian cases.	Boxes.	Number of plants.
Royal Gardens, Kew, London ...	1	1	43
Imperial Garden, St. Petersburg, Russia	2	326
Royal Botanic Garden, Peradeniya, Ceylon...	2	1	151
Botanic Garden, Jamaica ...	3	...	78
Ditto, Singapore ...	1	1	113
Ditto, Durban, Natal ...	2	...	48
Ditto, Rangoon	1	6
Ditto, Ootacamund	1	114
Ditto, Saharanpur	3	206
Ditto, Darjeeling	1	18
Victoria Garden, Bombay	1	...
Memorial Garden, Cawnpore	3	9?
Government Mouse Garden, Calcutta	1
Belvedere Garden, Alipore	37
Zoological Garden, Alipore	2
His Excellency the Governor of Madras ...	1	...	35
Military Secretary to His Excellency the Viceroy	100
G. Barclay, Esq.	1	90
William Bull, Esq., Chelsea, London ...	3	...	46
J. Galloway, Esq., Kilmeny, Scotland	1	50
M. Edouard Guillaume, 105, Boulevard Brune, Paris	1	38
T. C. Huxley, Esq, Peradeniya...	1	56
Sir George McLeay, Pendell Court, England ...	1	...	8
S. M. Main waxing, Esq., Natal ..	1	...	37
Dr. George Niven, Didsbury, Manchester	2	129
R. M. Redhead, Esq.	1	100
Madame Finet, Rue St. Germain, Paris	1	56
Mrs. Faraday Smith, Tunbridge, England	1	110
Colonel C. E. Stewart, Tabreez, Persia ...	4	...	42
Messrs. Hugh Low and Sons, Clapton Nur- sery, London	16	2,800
Messrs. F. Sander & Co., St. Albans, England	6	1,696
Agri-Horticultural Society of India, Calcutta	500
Ditto ditto, Madras	1	6
Agri.-Horticultural Garden, Lahore	14	262
Ditto ditto, Lucknow	1	6
Chief Commissioner, Burma	1	19
Commissioner of Police, Calcutta	324
Deputy Commissioner, Rangamatti, Chitta- gong	1	224
Ditto, Jalpaiguri	7	100
Assistant Commissioner of Salt and Abtari Revenue, Balasore	1	30
Director, Forest School, Dehra Dun	9	185
Collector of Murshidabad, Berhampore	7	168
Officiating Collector, Chittagong	3	26
Magistrate of Bhágalpur	3	60
Magistrate and Collector, MymensingU	11	240
Bubdivisional Officer, Pakaur	401
Ditto, Rampur Hát	180
Chairman, Sirajganj Municipality	5	120
Ditto, District Board, Noakhali	12	300
Cantonment Magistrate, Barrackpore	170
Magistrate and Chairman, District Board, Nadia	4	1,000
Vice-Chairman, District Board, Naogaon	1	25
Ditto, JLocal Board, ditto	2	50
District Engineer, Backergunge, Barieál	14	350
Ditto, District Board, Midnapore	40	1,000

APPENDIX II—continued.

TO WHOM SENT.	War- dian cases.	Boxes.	Number of plants.
Assistant Engineer, Central Road Works, Calcutta	400
Assistant Engineer, Asansol Subdivision, Dehika	52	1,000
Superintendent of Jail, Alipore	16
Ditto of Jail, Midnapore	478
Ditto of Presidency Jail, Calcutta.	1,140
Ditto of Jalpaiguri	2	34
Superintendent, Tura Sub-Jail, Assam	1	17
Ditto, Barrackpore Park	34
Ditto, Lunatic Asylums, Alipore	1,810
Ditto, Foundry and Shell Factory, Cossipore	317
Ditto, Horticultural Institution, Cos- sipore	12
Ditto, P. & O. Co., Ltd., Calcutta	867
The Ladies' Golf Club, Calcutta	20
Manager, Bengal Mills, Garden Reach	18
The Master of the Mint, Calcutta	300
Meteorological Reporter, Calcutta	200
Postmaster, Diamond Harbour	50
Deputy Postmaster-General, Lucknow	5	109
Ditto ditto, Dinapore	2	136
Settlement Officer, Jalpaiguri	4	60
Soldiers' Gardens, Fort William	1,869
Ditto, Dum-Dum	200
The Captain and Steward of the S.S. <i>Attica</i>	24
Medical College Hospital, Calcutta	126
Howrah Hospital	1,113
La Martinière School, Calcutta	3,450
Christ Church School, Calcutta	100
St. John's Church, Calcutta	400
St. Joseph's Home, Calcutta	100
Church of England Zanána Mission Society, Calcutta	1,380
General Assembly's Institution	130
E. I. Railway, Howrah	2,000.
B. B. S. Railway, Sealdah	6	140
A. A. A pear, Esq., Calcutta	49
C. A. B. Anderson, Esq.	19
T. B. Anderson, Esq.	12
T. J. Ayres, Esq., Howrah	6
Mrs. E. M. Bacon, Lalitpur	1	50
H. Bahr, Esq., Sonthal Colony	1	42
O. W. Bartlett, Esq., Calcutta	1
Miss Buchanan, Calcutta	300
Mrs. E. M. Ooss, Calcutta	3
Dr. D. D. Cunningham, F.R.S., Calcutta	34
Rev. J. A. Elliott	1
Mrs. Fiddian, Howrah	4
J. Gammie, Esq., Mungpoo	9	220
Hon'ble C. B. Farrett, c.s., Calcutta	55
Mrs. Gillespie, Howrah	5
T. Grant, Esq., Sninthia	1	4
H. H. Hamilton, Esq., Calcutta	80
Mrs. Home, Calcutta	3
A. C. Haitess, Esq., Mungpoo	6	114
Dr. Hoernlo, Calcutta	727
G. Huddieston, Esq., Khagore	1	136
Kev. H. B. Iijde, Calcutta	120
E. W. Jewett, Esq., Calcutta	7
J. Johnson, Esq., S.S. <i>City of Venice</i>	2
W. Kilburn, Esq., Calcutta	24

APPENDIX II—continued.

Tit WHOM SENT.	War- dian cases,	Boxes.	Number of plafits.
Dr. George King, M.B., C.I.E.	32
G. T. Lane, Esq.	16
Mrs. Xieeson, Calcutta	24
C. S. Lefchbridge, Esq., Calcutta	2
Prince Linben, Calcutta	2
C. Little, Esq., "	12
Mrs. LyaU, "	2,123
" Macdonell, Engineering College	752
Col. J. Mackesy, Tirhut	34
E. EL Man, Esq., Port Blair	...	1	34
C. Maries, Esq., Gwalior	...	34	249
J. W. Mawhood, Esq., Calcutta	...	5	2,500
Mrs. Maxwell, Howrah	100
M. Nahar, Esq., Azimganj	...	3	24
M. Nod, Esq., Cachar	2
R. Pantling, Esq., Mtingpoo	...	2	61
R. Li Proudlock, Esq.	2
Dr. F. Rahan, Khulna	...	2	50
" D. O'C. Uaye, Calcutta	36
G. O. Ranger, Esq., Ballygunge	15
H. R. Reiry, Esq., Cuttaok	...	8	116
W. Roberts, Esq., Sulkeah Salt Golah	302
J. Robinson, Esq., Bhágalpur	...	13	326
P. O. Rodrygues, Esq., Bombay	...	1	6
Charles ROBR, Esq., Sibpur	200
Colonel H. Sadler, Calcutta	112
Mrs. Shaw, Engineering College	1,761
C. J. Simson, Esq., Mahmarra Tea Estate	1	4	82
J. S. Slater, Esq., Engineering College	962
Mrs. Goldsmith, Calcutta	125
E. M. Smith, Esq., Calcutta	8
Captain A. Symons, S.S. Cathay	...	5	218
A. Thompson, Esq., Jalpaiguri	...	1	4
J. H. Toogood, Esq., Engineering College...	508
Dr. C. J. "Warden, Alipore	8
Mrs. Wicks, Howrah	11
R. Wimberley, Esq., Port Blair	...	1	15
W. T. Wood, Esq., Calcutta	6
George "Yule, Esq., Jiagunge	...	2	25
Messrs.-W. B. Mactavish & Co., Calcutta	...	8	164
The Hon'ble Nawab Asanullah Khan Baha- door, C.I.E., Dacca	...	9	150
Rai Bahadoor Sari Dass Vehari Dass, Dewan Sahib of Junagadh, Bombay	...	1	236
Kumar Gogendra Narayan, M.R.A.C, Kuoh Bihar	...	5	129
Chowdhoory Mahadeo Prosad, Nanpur	...	4	100
Pandit Shahoo Ram Sharup, Thakurdwara	...	1	6
Babu Soorjoo Deo Naraia Sing, Balegarh	69
" A. O. Baneijee, Allahabad	2
" A. T. Lahiri, Nadia	...	1	6
" B. B. Ghosh, Taki	71
" B. Sing Ray, Hanipal	...	2	10
" D. N. Shaynia, Motihari	...	1	25
" G. C. Datta, Sibpur	36
" G. C. Haider, Serampore	51
" G. C. Roy, Baranagore	26
" H. S. Roy, Calcutta	7
" J. B. Bose, Comilla	7
" J. N. Paul, Ghoshpur	100
" K. C. Palit, Calcutta	104
" M. N. Dey, Calcutta	10
" N. S. Datta, Howrah	100

APPENDIX II—concluded.

TO WHOM SENT.	War. dian cases.	Boxes.	Number of plants.
Babu Nf C. Roy, Calcutta	24
„ N. C. Baral, Calcutta	771
„ N. G. Mookerjee, Jamtana	1	195
„ P. Q. Ghosh, Calcutta	15
„ R. C. Roy, Sanchi	5	29
„ R. Malleah, Howrah	28
„ R. R. Ghosh, Dacca	2
„ S. C. Bhattacharjee, Santipur	2	9
„ S. K. Roy Chowdhury, Taki	16
„ S. P. Chatterjee, Calcutta	50
„ W. A. Sen, Ramkrishtopur	2
Essen Chundra Dass, Nurseryman, Maniok- xolia	21
Gopal Chundra Samunta, Nurseryman, Manicktolla	300
Hari Dass Dass, Nurseryman, Manicktolla	4
Neymai Charun Samanta, Nurseryman, Manicktolla	200
Mahomed Shahib, Garden Reach	2
Munshi Tustemudin, Calcutta	7
Shaik Dewan Mallee, Thana Makooah	24
Total ...	20	403	46,435

APPENDIX III.

Statement showing seeds received from 1st April 1891 to 1st March 1892.

FROM WHOM RECEIVED,	Number of - parcels or packets.
W. T. Thiselton Dyer, Esq., F.R.S., c.M.a., Director, Royal Gardens, Kew, London ...	131
Dr. Regel, Imperial Garden, St. Petersburg, Russia ...	213
Koyal Botanic Garden, Peradeniya, Ceylon ...	16
Botanic Garden, Adelaide ...	1
Ditto, Brisbane ...	3
Ditto, British Guiana ...	2
Ditto, Bangalore ...	7
Ditto, Port Darwin ...	29
Ditto, Darjeeling ...	262
Ditto, Grenada ...	2
Ditto, Hongkong ...	7
Ditto, Jamaica ...	7
Ditto, Mauritius ...	12
Ditto, Mussoorie ...	1
Ditto, Rockhampton ...	2
Ditto, Saharanpur ...	30
Ditto, Singapore ...	1
Ditto, Trinidad ...	19
Ditto, Queensland ...	5
George EL T. Mayer, Esq., Memorial Garden, Gawnpore^	6
G. Carstensen, Esq., Superintendent, Victoria Garden,* Bombay . . .	2
Baron Ferdinand Yon Muehler, F.R.S.; Melbourne; Australia ...	4
Secretary to the Agri-Horticultural Society of India, Calcutta ...	1
Superintendent, Agri-Horticultural Garden, Lahore ...	152
Ditto ditto, Mstdras ...	2
F. Bailey, Esq., Government Botanist, Queensland ...	1
Conservator of Forests, School Circle, North-Western Provinces and Oudh, Dehra Dun	2

APPENDIX III—concluded.

FROM WHOM RECEIVED.	Number of parcels or packets.
Assistant Conservator of Forests, Darjeeling Division	1
Deputy Conservator of Forests, Dehra Dun Division	1
Forest Officer in charge; Chittagong Division, Eanga- xmati	1
J. Gammie, Esq., MuDgpo	4
Signor T. Hanbury, F.L.S., Ija Mortola, Ventimiglia, Italy	146
Mr. Ringdon, Madagascar	4
J. L. Lister, Esq., Kalimpong	4
Manager, Palm and Citrus Nursery Company, Santa Barbara, California	8
E. H. Mann, Esq., Port Blair	22
C. Maries, Esq., Gwalior	1
Messrs. Dammann & Co., Teduocio, Italy	368
Messrs. Beasoner Brothers, Royal Palm Nurseries, Manatu, Florida	13
Dr. David Prain	29
Colonel Pritchard "	1
R. L. Proudlock, Esq.	13
Revenue and Agricultural Department, Government of India	1
Babu Bishumbhur Ghose, Taki	1
" Nittanunda Mondul	1
Munshi Abdul Hok, Plant Collector	3
Unknown donor	38
Total	1,580

APPENDIX IV.

Statement showing seeds distributed from the Royal Botanic Garden during the year 1891-92.

TO WHOM SENT.	Number of parcels or packets.
W. T. Thiselton Dyer, Esq., F.R.S., C.M.G., Director, Royal Gardens, Kew, London	96
Dr. Egel, Imperial Garden, St. Petersburg, Russia	102
Royal Botanic Garden, Peradeniya, Ceylon	19
Botanic Garden, Buitenzorg, Java	5
Ditto, Darjeeling	235
Ditto, Port Darwin	16
Ditto, and Domain Garden, Melbourne	11
Ditto, Ganesh Khund, Poona	1
Ditto, Grenada	10
Ditto, Eockhampton	5
Ditto, Saharanpur	3
Ditto, Singapore	4
Memorial Garden, Cawnpore	2
Taj Garden, Agra	5
Victoria Garden, Bombay	1
Nizam's Government Gardens, Aupangabad	2
Baron Ferdinand von Mueller, F.R.S., Melbourne	19
Herr Professor Eawenhoff, Botanic Garden, University, "Utrecht"	69
Secretary to the Agri-Horticultural Society of India, Calcutta	3
Ditto ditto, Rangoon... ..	2
Superintendent, Agri-Horticultural Garden, Lahore	4
Ditto, ditto, Luoknow	16
Ditto, ditto, Madras	3
Ditto, Bh&galpur Jail	1
Ditto, Intermediate Jail, Bogra	1
Ditto, Comilla Jail	1
Ditto, Motihari Jail	1
Ditto, Patna Jail	1

APPENDIX IV—*continued.*

To WHOM SBNT.	Number of parcels or packets.
Assistant Jailor,* Noakhali Jail ...	1
Pandit Shadookwa Rao, Assistant Superintendent, State Gardens, Gwalior ...	2
Colonel J. G. Ardagh, R.E., C.B.» Private Secretary to His Excellency the Viceroy, Simla ...	42
H. Bahr, Esq., Sonthal Colony, Thakurpara ...	112
Lieutenant-Colonel Lord William Beresford, C.I.E., Military Secretary to the "Viceroy ...	3
Mrs. Betts, 116, Bipun Street, Calcutta ...	12
R. Bignell, Esq., Private Secretary to His Highness the Maharajah of Kuch Bihar, "Woodlands, Alipore ...	1
Sir W. Bowman, F.R.S., Joldwynds, England ...	98
Professor Bower, F.R.S., University, Glasgow ...	54
C. M. Brimby, Esq., Commercial Buildings, Calcutta ...	48
Dr. J. Campbell Brown, F.R.S., Liverpool, England ...	32
J. Oleghorn, Esq., Executive Engineer, Public "Works Department, Chakradharpur ...	49
H. Cloëte, Esq., "Writers' Buildings, Calcutta ...	47
Brigadier-General H. Collett, C.B., Shillong ...	187
Lieutenant-Colonel*, Intelligence Department^ Simla ...	47
Pffioer Commanding, 51st Royal Artillery, Din^ipore ...	25
Officiating Director of Land Records and Agriculture, HangOon «« ...	2
Deputy Conservator of Forests, Buxa Subdivision, Bttxa Duar, Jalpaiguri ...	1
Forest Officer in charge, Chittagong Division, Ghitta- gong ...	1
Forest Officer, Port Blair, Andamans ...	1
District Forest Officer, Bellary, Madras ...	1
Ditto, Chinglep'ut, Madras ...	1
Ditto, Nellore, Madras ...	1
District Engineer, Bhágalpur ...	2-
Ditto, Pabna ...	1
Ditto, • Bangpur ...	8
Executive Engineer, Eastern Bengal State Railway, Northern Section, Saidpur ...	12
The Xattywar Agency Engineer, Rajkote ...	1
Overseer, District Board, Sirajganj ...	1
G. F. Scott-Elliot, Esq., Newton Dumfries, Scotland ...	37
Mr. Gh H. Ellis, C/o G. H. Ellis, Esq., Forest Department, Xhulna - ...	190
Dr. A. Eng-ler Konigl. Botaniches Museum, Berlin ...	90
F. B. Gadsden, Esq., Kanity, Vizagapatam ...	3
J. Sykes Gamble, Esq., -Director, Forest School, Dehra Dun ...	2
J. Gammie, Esq., Mungpoo ...	75
Robert Philip Heilgers, Esq., Imperial and Royal Austro-Hungarian Consul, Calcutta ...	90
Monsieur Guillaume, 105, Boulevard Brune, Paris ...	5
G. Hadfield, Esq., District Forest Officer, South Malabar, Madras « ...	1
James Inglis, Esq., Sydney, Australia ...	1
Rev. J. O.-Inglis, Mainpuri ...	1
Inspector, Salt and" Abkari Revenue, Kanity, Vizaga- patam ...	4
The Acting Imperial and Royal Austro-Hungarian Consul, Calcutta ...	166
Professor J. G. McKendrick, F.B.S., University, Glasgow, Scotland . . .	43
Rev. A. Logsdail, S. P. S. Missionary, Chaibassa, SinghbhutD ...	50
S. M. Mainwaring, Esq., Natal ...	2
The Manager of "The Duthie Park," Aberdeen ...	59
O. Maries, Esq., Gwalior ...	19
Messrs. Ealburn and Co., Calcutta ...	4
" H. Low and Co., Glapton Nursery, L*ondon ...	4
« "W. B. Mactavish and Co., Cahmtta ...	27

APPENDIX IV— *concluded.*

To WHOM SENT,	Number of parcels or packets
Messrs. Williamson, Magor and Co., Calcutta *	10
„ Stanley, Price and Co., Calcutta ...	1
„ J. P. Williams and Bros., Heneratgoda ...	8
D. MacNair, Esq., Look End, Kodikanal, Madura District, Madras Presidency ...	34
Officer in medical charge, Station Hospital, Paohmarhi	26
The Medical Officer in charge, Station Hospital, British Troops, Barraokpore ...	23
Rev. O. Pakenham, Longford Lodge, Ireland ...	1
G. T. Paschould, Esq., Deohri, Fyzabad ...	1
F. W. Phillips, Esq., in charge, Public Garden, Allahabad ...	3
Hugh C. Prance, Esq., District Superintendent of Police, Shwebo, Burma ...	11
Mrs. Prain, Sureil, Kurseong... ..	53
The Garrison Quarter-Master, Fort William, Calcutta	48
B. Milne Bedhead, Esq., Springfield, Seedley, Manchester ...	51
Mr. Robinson, Howrah ...	1
H. J. Roberts, Esq., Calcutta ..	1
Kinton Stevens, Ifaq., Palm and Citrus Nursery, California ...	10
B. Thieneniarn, Esq., Gardener to the Hon'ble George King, Queensland, Australia ...	191
Captain Thwaytes, Moulmein, Burma ...	3
Surgeon-General W. Walker, M.D., Claremont, AUeyn Park ...	25
M. R. Weld, Esq., Kurnool, Madras ...	71
(*) Marshall Woodrow, Esq., College of Science, Poona	2
Dr. M. N. Ganguli, Medical Practitioner, Cawnpore ...	12
Pandit U. Narsing Bow, Court Road, Mangalore ..	1
N. Bamalinga Nayager, Esq., Madras ...	1
Shariff Salemahamud, Esq., Commercial Agent, Junagudah State, Kathiawar ...	1
Bai Surj Mull Jfaoonj boon wallah Bahadur, Calcutta ...	1
Babu Avinas Chundra Banerjee, Assistant Surgeon, Allahabad ...	13
Babu Abinash Chundra Sen, Sibpur ...	8
„ Bipin- Behari Chattopadhy, Medical Officer, Niduta Charitable Dispensary ...	1
Babu Bissumbhur Uhorse, Taki ...	1
„ Dabendra Nath BaBU, Sibpur ...	20
„ Gopal Chundra Oatta, do. ...	44
„ Jadub Chundra Biswas, Calcutta ...*	5
„ Nimai Churn Dey, Sibpur ...	5
„ Protap Narain Singh, retired Deputy Magistrate, Bankura ...	1
Total ...	2,972

APPENDIX V.

List showing contributions to the Herbarium during 1891-92.

Herbarium, Boyal Gardens, Kew ...	2,300
Dr. Henry's Chinese plants ...	1,763
Mr. A. E. Pratt's Tibetan plants ...	777
Baron Sir F. Von Mueller, K.C.M.G., F.R.S, Melbourne ; Australian plants ...	817
Mr. C. Pringle's Mexican plants ...	600
Mr. H. N. Sidley, Singapore; plants from Pahang, Malay Peninsula ...	493
Saharanpur Herbarium; plants of Kashmir, etc ...	954
General Sir H. Collett, K.C.B.; plants of Assam, etc. ...	250
J. S. Gamble, Esq.; plants of Jaunsar-Bahir ...	266
J. H. Laue, Esq.; plants of Bashahr ...	627
W. A. Talbot, Esq.; plants of Oanara ...	111

APPENDIX V—*continued*

Dr. -A. Alcock, Her Majo-siy's Iii'lian Marine <i>Intr.ih/nt^r</i> ;			
Laccadive plants	...	...	800
Dr. J. J. Wood; plants of Chota Nag-pur	...	...	54
Dr. L. A. Waddell; Sikhim plants	...	...	04
Captain Fulton; plants of Upper Burma	...	...	41
Mr. S. M. Teal; plants of Upper Assam	...	...	212
Mr. E. Ileawood; plants of the Duars	...	...	128
Dr. T. Ooko, C.I.E.; plants of Sciidu	...	...	50
Garden collectors—			
Mr. Pantling; orchids of the Sikhim Himalaya	...	1,41H	
Dr. Prain; Norcondam, Barren Island, Nicobars, etc		930	
Ditto; Chota Nagpur	...	...	800
Ditto; Jaintoa Hills	...	...	3.0
Andamans collections, under supervision of			
E. H. Man, Esq.	...	...	2,300
Assam collections; Native collectors	...	...	1,019
Burma collections; Mr. Proudlock, Tenasscrini	...	...	620
Do. do; Siunslil Abdul Ilok	...	...	1,974
Do. do; Dr. Leslie's collectors	...	...	33
			9,014
Total	...		19,100

APPENDIX VI.

JLt'fti showing ihstribuiion oj' (OtUuntiwUythmivl Herharium Sprvirnvn durimj 1891-92.*

Herbarium, Royal Gardens, Kew	...	...	830
British Museum, London	...	...	537
Saharanpur Herbarium	...	...	281
Royal Botanic Garden, Edinburgh	...	...	309
Ditto ditto, Peradeniya	...	...	319
Botanic Garden, Singapore	...	...	319
Government Central Museum, Madras	...	...	219
College of Science Museum, Poona	...	...	247
Government Museum, Perak	...	...	400
J. S. Gamble, Esq., Director, Forest School, Dehra Dun	...	...	199
C. Curtis, Esq., Forest Herbarium, Ponang	...	...	277
W. A. Talbot, Esq., Forest Office, N. Canara	...	...	102
Herbarium, Imperial Gardens, St. Petersburg	...	...	332
Ditto, Royal Garden, JJuitenzorg	...	...	203
Smithsonian Institution, Washington, U.S.A.	...	...	404
Imperial Museum, Vienna	...	...	257
Botanic Garden, Vienna University	...	...	204
Royal Botanical Museum, Berlin	...	...	430
Ditto ditto, Florence	...	...	103
Herbarium, Jardin des Plantes, Paris	...	...	200
Royal Herbarium, Leiden	...	...	519
Herbarium of the University of Cambridge	...	...	202
Ditto ditto of Upsala	...	...	195
Ditto ditto of Utrecht	...	...	108
Ditto ditto of Melbourne	...	...	527
Ditto ditto of Aberdeen	...	...	206
Herbarium of Owen's College, Manchester	...	...	188
SI. A. do Candolle, Geneva	...	...	401
Signor O. Beccari, Florence	...	...	269
Gustav Mann, Esq. (Ferns)	...	...	774
Dr. V. F. Brotherus, Helsingfors (J/o<<*)	...	...	025
Tot ul	...		10,500

D. PRAIN, M.H., *Stfn/rnn*, I.M.S.,

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN, CALCUTTA, FOR
THE YEAR 1892-93.

No. 16GK, dated Sibpur, near Calcutta, the 11th May 1893.

From—BRIGADE-SURGEON LIEUTENANT-COLONEL Gk KINO, M.B., F.R.S., C.I.E.,
Superintendent, Royal Botanic Garden, Calcutta,

To—The Secretary to the Government of Bengal, Financial Department.

I HAVE the honour to submit herewith the one hundred and sixth Annual Report of the Royal Botanic Garden.

ANNUAL REPORT OF THE ROYAL BOTANIC GARDEN, CALCUTTA, FOR THE
YEAR 1892-93.

WHEN the year opened, the garden was suffering from one of the severest droughts which has been experienced for many years. This drought had caused the death of a number of outdoor plants, and especially of palms, and had affected the orchids so that the show of bloom (in spite of the increased number of plants) was the poorest known for years. The drought continued during the months of April and May; and until the monsoon broke it was necessary to employ a very large proportion of the staff of coolies in carrying water. Although dry, the latter part of the hot season had, however, rather a moderate temperature, and the rainy season was favourable; so that the effects of the six months of extreme dryness had been to a great extent recovered from before the cold season began. The latter was the pleasantest which has been experienced in Calcutta within the memory of the oldest inhabitant, and it was in consequence a particularly favourable one for the annuals which form so attractive a feature in the garden during February and March. The expenditure of labour in watering during April, May and June interfered a good deal with the completion of the programme for road-making which had been laid out for the year. A great deal, however, was accomplished in the improvement and returfing of the avenues in the Palmetum. The roads are no doubt the weak feature in the garden at present, and much remains to be done to bring those in the central part of it into really good condition. Were mere returfing all that had to be done, the task would be a simple one; but, owing to the changes of level which were caused by throwing the garden into undulations while it was in process of being laid out afresh some years ago, the levels of many of the older roads must now be altered, and the earthwork which has thus in most cases to precede returfing adds greatly to the cost of, and lengthens the time taken to effect, the improvements. Towards the end of the year an additional grant of Rs. 5,000 was made for garden improvements, and this was spent chiefly in burning jhamma for road metal to be used during the current year, and in providing bricks for building huts for the garden coolies who have for years past been very badly housed. Although the river did but little visible injury to the bank during the year, it was discovered, when the rainy season had ended, that at one point considerable erosion has occurred, and that the previously sloping bank near the pumping station has been scooped out into a deep hole. I fear there may be serious mischief at this point before long. The conservatories continue to be in a satisfactory condition, the plants in them having suffered comparatively little from the drought of the early part of the year. During the year the collection of aquatic birds on the lake near the orchid house was increased by a gift of water-fowl from Mr. Thiselton Dyer, C.M.G., F.B.S., Director of the Royal Garden, Kew.

2. *Economic plants**—The usual amount of attention was given to the cultivation and distribution of plants of economic interest. As many as possible of the plants producing sisal hemp (*Agave rigida*, var. *sisalana*) were distributed during the year. The plants thus distributed were obtained from America through the good offices of the Director of Kew. Large numbers of the large-leaved mahogany were issued for planting in avenues in cantonments and civil stations. Rhea plants were also issued as asked for. The interest in rhea cultivation is of a very flickering sort, and at present it has almost died out

in the neighbourhood of Calcutta. Plants of the cola-nut tree (*Cola acuminata*) were given out as far as the limited stock permitted. I regret to say that all my efforts to introduce the cultivation of the Japanese paper mulberry have failed. A small plantation is, however, kept up to meet any future demand. As the Japanese mulberry yields a most beautiful fibre, which is naturally so white that it requires very little bleaching, it seems a pity that no wealthy landowner has taken up its cultivation on a large scale.

3. *Herbarium*.—Work in the Herbarium went on as usual during the year, botanical references having been answered and plants named for correspondents in increased numbers. Specimens to the number of 15,750 were received from various sources, while 8,787 specimens (all carefully named) were issued to various botanical institutions throughout the world. The plants thus issued belonged largely to families of which either Dr. Prain or myself have recently-made particular studies. Foremost amongst the institutions to whom this Herbarium is indebted for contributions during the year is the Royal Herbarium at Kew, the Director of which contributed 2,200 specimens. Next in numbers is the collection of Western Indian species received from Dr. T. Cooke, C.I.E., Principal of the College of Science, Poona. Dr. Cooke's contribution (which contained 1,559 specimens) is a peculiarly acceptable one, as heretofore the flora of Western India had been but poorly represented here. To Mr. H. N. Ridley, Director of the Botanic Garden, Singapore, we are indebted for interesting collections (numbering 1,424 specimens) from Pahang and other States under the protection of the Government of the Straits Settlements. Mr. G. D. Haviland sent no less than 1,144 specimens from North Borneo; while smaller collections were received from Mr. Curtis, Forest Department, Penang (269 specimens); Mr. L. Wray, junior, of the Government Museum, Perak (221 specimens); Mr. J. S. Gamble, Director of the Forest School, Dehra Dun (195); Sir Henry Collett, K.C.B., Peshawar (76); Mr. C. B. Clarke, late of the Indian Educational Department, to whom the Herbarium is already deeply beholden, continued his generous contributions by sending during the year 606 specimens collected by himself, chiefly in the jungles of Manipur and Assam. Mr. Scott-Elliot, a gentleman who has travelled much in the interests of Botany, sent as a contribution from Egypt 121 plants. The Directors of Herbaria in Europe contributed as follows:—Imperial Garden, Berlin, 849 specimens; Herbarium Imperial Botanic Garden, Vienna, 600 specimens; Imperial Garden, St. Petersburg, 218; Royal Garden, Leiden, 24; while from the University of Melbourne there were received 417 specimens. The recipients of named plants distributed from the Herbarium during the year are to a great extent the same as the donors. A full list of them will be found in the sixth appendix to this report.

4. *Botanical collection*.—Through the direct agency of the officers attached to this Garden the following were received:—

Mr. R. Pantling, orchids of Sikkim	...	...	1,500
Mr. G. Gammie, from Independent Sikkim	...	...	1,021
E. H. Man, Esq., C.I.E., Andamans collections	...	...	867
Dr. Prain, from North Bengal	...	...	68
Native Collectors, Botanical Survey of Burma	...	...	1,064
Ditto ditto ditto of Assam	...	...	852

The collections made by Mr. Gammie were the result of a botanical excursion to some of the less known parts of Independent Sikkim and of the Tibetan frontier, on which he was specially deputed with the sanction of Government. They contain many rare plants of much interest. Mr. Gammie was absent for four months. His first excursion extended through the Singalelah Range to its origin in Kinchinjunga. In the vicinity of Kin chinjunga itself Mr. Gammie was, on account of the great inclemency of the weather, able to remain only a few days. He next travelled across Sikkim to Tumloong, from whence he followed up the Tista to Chungtam. From thence Mr. Gammie explored the Lachung valley as far as the Donkia La, which was the northern limit of his travels. He spent two months in forming collections in this valley, and then ascended to Thanka La, and also to Gliora La at the head of the Sebu valley, one of the few tracts in this region which Sir Joseph Hooker was unable to visit during his sojourn in the Eastern Himalaya in 1849-50. From Lachung

Mr. Gammie returned to Tumloong; and from thence he traversed the Chola range, visiting the Cho-la, Yak-la, and Zey-lap-la passes. He returned to the cinchona plantation by the military road from Gnatong to the Tista bridge. Mr. Pantling's collections consisted exclusively of orchids, of many of which he has prepared most admirable drawings which I trust it may some day be possible to publish. The collections from the Andamans have been made by two Burmese, who have worked under the supervision of Mr. E. H. Man, C.I.E., whose efforts to help in the exploration of these islands have been most disinterested and laborious, and to whom this garden is very deeply indebted. Native collectors were sent as usual to Assam and Burma, and they brought back fairly good collections of common plants. Owing to my absence on furlough during seven months of the year, no botanical tour was made either by Dr. Prain or myself.

5. *Publications*.— During the year Dr. Prain contributed to the journal of the Bombay Natural History Society a paper on the botany of the Laccadives, founded on a collection of plants made in these islands by Dr. A. Alcock, Surgeon Naturalist to the Indian Marine surveying ship *Investigator*. He also contributed to the Journal of the Asiatic Society of Bengal a paper on the Flora of Narcondam and Barren Island, based on collections made in these islands by himself two years ago. In the same journal Dr. Prain published accounts of a new species of *Mczoneuron* and of two new species of *Pedimdaris*. In the Annals of Botany a paper appeared by him on the synonymy of *Anthocoma flavescens*; while in Hooker's *Icones plantarum* he published descriptions and figures of three new species of plants. The fourth volume of the Garden Annals was under preparation during the year, but it will not be ready for publication until the current year. Considerable progress was also made in the preparation of the fifth volume. A paper giving a detailed systematic account of all the members of the natural family of *Anonaceae* indigenous to British India was published by myself in the Journal of Asiatic Society of Bengal.

6. *Library*.—A few books were purchased and a number were rebound. The whole library was gone over and carefully poisoned with a solution in alcohol of corrosive sublimate, which our experience shows to be by far the best preventive of the ravages of the book maggot.

7. *Interchange of plants and seeds*.—The distribution lists are attached as appendices to this report. They show a total of 13,585 plants and 1,061 packets of seeds received, and of 43,619 plants and 5,072 packets of seeds sent out during the year.

8. *Lloyd Botanic Garden, Darjeeling*.—This branch institution was for the first nine months of the year under the charge of Mr. W. A. Kennedy, and during the remaining three (while Mr. Kennedy was on privilege leave) Mr. G. A. Gammie acted as its Curator. The garden escaped locusts, but suffered slightly from hail.

9. The budget allotments both of the Calcutta and of the Darjeeling gardens were spent almost to the full; as was also a supplementary grant of Rs. 5,000 given for improvements in the former. The estimated revenue for the Lloyd Botanic Garden, Darjeeling, was Rs. 900, and that for the Royal Botanic Garden Calcutta was Rs. 1,000; total Rs. 1,900. This total sum of Rs. 1,900 was revised by the Accountant-General, and raised by that officer to Rs. 2,000, which sum was accepted by Government as estimated revenue for the two gardens for 1892-93. The actual realizations were, for the Darjeeling garden Rs. 785 and for the Calcutta garden Rs. 1,618; total Rs. 2,403.

10. I was absent in Europe on furlough during seven months of the year, and my duties were performed during my absence by Dr. D. Prain. Mr. L. Proudlock was Curator, and Mr. G. T. Lane, Assistant Curator of the Calcutta garden during the year. And they as well as Messrs. W. A. Kennedy and G. Gammie in the Darjeeling garden carried on their respective duties to the satisfaction both of Dr. Prain and myself. The head-writer, Babu G. C. Datta, and the office and garden staff have also worked well.

11. Details of the receipts and of the distribution of seeds, plants, and Herbarium specimens will be found in the six tabular returns which are sent as appendices to this report.

APPENDIX I.

Statement showing plants received from 1st April 1892 to 31st March 1893.

FROM WHOM RECEIVED.	War-dian cases.	Boxes.	Number of plants.
Royal Gardens, Kew, London ...	2	5	3,215
Botanic Garden, Durban, Natal ...	2	...	36
Ditto, Port Darwin ...	...	...	22
Ditto, Singapore ...	...	1	36
Ditto, Saharanpur ...	...	2	354
Ditto, Darjeeling ...	...	15	3,111
Memorial Garden, Cawnpore ...	...	1	76
Messrs. John Laing and Sons, Forest Sill, London ...	...	2	78
Messrs. Hugh Low and Co., Clapton Nursery, London ...	...	2	58
Messrs. F. Sander & Co., St. Albans, [England ...	...	2	31
Agri-Horticultural Society of India, Calcutta ...	...	...	60
Ditto, Garden, Lahore ...	...	2	62
Zoological Garden, Alipore ...	...	...	12
Deputy Conservator of Forests, Sunderbuns ...	...	...	230
Executive Engineer, Balasore ...	...	1	1
Gwalior State Garden ...	...	5	186
C. A. B. Anderson, Esq., Talipara, Jalpaiguri ...	i	6	461
H. G. Batten, Esq., Mergui ...	i	1	259
Hon'ble J. Buckingham, C.I.B., Assam ...	...	...	2
Sir Henry Collett, K.C.B., Peshawar ...	...	...	9
Dr. D. D. Cunningham, F.R.S. ...	...	...	204
J. Gammie, Esq., Mungpoo ...	...	6	469
G. Barton Groves, Esq. ...	...	...	6
O. Little, Esq., Calcutta ...	...	...	1
E. H. Man, Esq., Fort Blair ...	8	...	617
J. Parkes, Esq., Bhutan ...	...	...	777
G. McD. Peche, Esq., Moulmein ...	1	6	614
J. Phillips, Esq., Allahabad ...	...	...	47
J. S. Slater, Esq., Engineering College ...	...	...	12
Robert V. Woods, Esq. ...	1	...	18
Colonel Wylie. c.s.i., Khatmandu, Nepal ...	...	...	99
Collected by Dr. David Prain at Shillong ...	...	...	6
Ditto by Mrs. Prain in Assam ...	...	...	650
Ditto by Abdul Hook in Burma ...	...	5	1,640
„ S. P. Chatterjee, Calcutta ...	...	...	101
Shark Sadar Mallee, Thana Makooah ...	...	...	25
Total ...	16	62	13,585

APPENDIX II.

Statement showing plants sent out from 1st April 1892 to 31st March 1893.

TO WHOM SENT.	War-dian cases.	Boxes.	Number of plants.
Royal Gardens, Kew, London ...	2	1	64
Botanic Garden, Buitenzorg, Java ...	1	...	24
Ditto, Ootacamund ...	...	1	143
Ditto, Bangalore ...	...	1	89
Ditto, Saharanpur ...	...	2	50
Ditto, Darjeeling ...	...	1	40
Memorial Garden, Cawnpore ...	...	5	125

APPENDIX II—continued.

TO WHOM SENT.	War- dian cases.	Boxes.	Number of plants.
Government Souse Garden, Calcutta	130
Belvedere Garden, Alipore	145
Zoological Garden, Alipore	1,285
Secretary, Board of Revenue, Calcutta	4
Sir Alexander Arbuthnot, India Office, London	1	74
George W. W. Barclay, Esq.	1	87
Sir Edward Durand Bart., C.B. ...	1	...	8
Lord Marcus Beresford, London	1	228
The Bight Honourable Sir Mountstuart Grant Duff	1	89
Monsieur le Gouverneur des Établissements Francois des les Indes, Pondichery ...	1	...	26
Professor M. M. Hartog, Queen's College, Cork, Ireland	1	57
W. G. Head, Esq., Crystal Palace, London ...	1	...	19
TV. D. P. Keppel, Esq. ...	1	...	24
D. Low, Esq., Brindisi ...	1	...	33
8. M. Mainwaring, Esq., Natal ...	1	...	142
Andrew Murray, Esq.	1	96
Dr. George Niven, Didsbury, Manchester	1	131
F. M. Soargill, Esq., York	1	65
Messrs. Hugh Low and Co., Clapton Nursery, London	10	2,500
Agri-Horticultural Society of India, Calcutta	385
Ditto Garden, Lahore	22	336
Ditto ditto, Luoknow	2	50
Chief Commissioner of Assam	1	12
Settlement Officer, Sikkdm	1	31
Deputy Commissioner, Mergui ...	1	...	43
Chief Commissariat Officer, Presidency Command	2,126
Sergeant Gates, Commissariat Department, Calcutta	5
Magistrate of Howrah	1,200
Chairman, District Board, Mymensingh	15	302
Vice-Chairman, Station Committee, Silchar	1	25
Subdivisional Officer, Buxar	1	15
District Engineer, Backergunge, Barisal	17	425
Ditto, Dinajpur	12	300
Ditto, Faridpur	24	600
Ditto, Jalpaiguri	2	50
Ditto, Kbagole, Patna	1	36
Ditto, 24-Parganas	450
Executive Engineer, Buxar	80	2,000
Ditto, Contai	4	100
Assistant Engineer, Central Road "Works, Calcutta	780
Ditto, Purulia subdivision, Asansol	104	2,600
Overseer, Calcutta Municipality, Calcutta	120
Superintendent of Jail, Alipore	2,943
Ditto, Dacca	7	166
Ditto, Midnapore	300
Ditto, Gorakhpur	4	100
Ditto of Police, AUpore	70
Ditto, Indian Museum, Calcutta	402
Ditto, Lunatic Asylums, Alipore	64
Ditto, Gunpowder Factory, Ishapur	36
Ditto, P. and O. Company, Calcutta	800
Manager, Bengal Coal Company, Limited, Barakar	1	25
Ditto ditto, Raniganj	1	25
Ditto Khooldeah Colliery, Giridih	2	50

APPENDIX II—continued.

To WHOM SENT.	War- dian cases.	Boxes.	Number of plants.
Manager, Laikdee Colliery, Barakur	2	60
Ditto, Sodepur Coal Company, Limited, Sitarampur	1	25
Soldiers' Gardens, Fort William	4,140
Ditto, Barraokpore	100
Ditto, Alipore	56
Medical College Hospital, Calcutta	100
Howrah Hospital	534
Deputy Director, Her Majesty's Indian Marine Dockyard, Kidderpore	24
Bible School, Howrah	100
Christ Church School, Calcutta	100
Chaplain of Howrah	50
Sir Edward Bradford* London	21
Church of England Zanana Mission Society, Calcutta	100
St. John's Church, Calcutta	50
La Martiniere School, Calcutta	42
Ravenshaw College, Cuttack	4	95
General Assembly's Institution	150
East Indian Railway, Howrah	200
Eastern Bengal State Railway, Sealdah	100	2,000
J. S. Alley, Esq., Bhandara	1	3
C. A. B. Anderson, Esq., Talipara, Jalpaiguri ...	1	5	88
A. A. Apar, Esq., Calcutta	8
A. A. Apar, Esq., Sibpur Jute Mill	12
Colonel Baird, H.B., F.K.S., Calcutta Mint	66
J. W. Barnett, Esq., Tellecherry	1	10
Mrs. Betts, Calcutta	25
Revd. G. B. Broadhead, Calcutta	110
Rudston Brown, Esq., Garul, Tirhut	1	12
Hon'ble J. Buckingham, C.I.B., Assam	4	101
R. J. Cave, Esq., Fume a	1	10
J. Connor, Esq., Government Docks	6
J. Cooke, Esq., M.A., Poona	1	6
Miss Griper, Calcutta, for bazar	100
H. D. Christian, Esq., Monghyr	4	105
Dr. D. D. Cunningham, M.D., F.R.S.	89
F. Curtis, Esq., Bhagralpur	4	100
A. Darkins, Esq., Calcutta	3
Miss E. F. Garlah, Raipur	1	2
G. Barton Groves, Esq.	12
J. A. Gamxnie, Esq., Mun^poo	12	493
C. B. Garret, Esq., c.s., Alipore	85
Mrs. Gillespie, Howrah	44
Revd. J. A. Graham, M.A., Kalimpong	1	6
W. Graham, Esq., Serampore	250
Miss. E. M. Hall, Agurpara	14	300
„ Hamilton, M.B., Calcutta	6
Captain Henderson, S.S. Gokonda ...	1*	...	3d
Dr. Hoernle, Calcutta	945
C Ingram, Esq., Tavoy ...	1	...	34
Mrs. Johnson, Caohar	10	250
H. E. Rear Admiral Kennedy, Trincomallee	6	85
Dr. George King	1
W. A. Lee, Esq., Sibpur	Ifi8
C. Little, Esq., Calcutta	1
Revd. A. Logsdail, Chaibassa	1	10
A. MaodoneU, Esq., Engineering College	ft
E. H. Man, Esq., Port Blair ...	10	...	392
Gwalior State Garden	102
Mrs. Maxwell, Howrah	503
Captain Marr, S.S. City of Bombay	0	24
R. Mantling, Esq., Mungpoo	2	29

APPENDIX II—continued.

To WHOM SENT.	War- dian cases.	Boxes.	Number of plants.
G. McD. Peche, Esp., Moulmein ...	1	1	43
T. Pereira, Esq., Calcutta	1
James Peter, Esq., Monoomookh	3	60
Mrs. Prain ...	1	...	20
Kevd. J. Pratt, Midnapore	1	11
R. Ii. Proudlook, Esq.	32
S. E. Rita, Esq., Jaintapur, Cuttack	1	40
W. Roberts, Esq., Salt Gollah, Sulkea	30
J. Robinson, Esq., Bhagalpur	11	270
Charles Ross, Esq., Sibpur	8
Mrs. Sandell, Calcutta	70
„ Scully, do.	401
„ Shaw, Engineering College	1,544
J. F. Simmonds, Esq., Howrah	12
A. Sim son, Esq., Calcutta	10
J. S. Slater, Esq., Engineering College	138
Talangi Chinaman, Calcutta	15
Revd. H. Tiffman, Purulia	9	200
Sergeant R. D. Tjrqhart, Calcutta Mint	2
W. Walker, Esq., Mahamarrah Tea Plan- tation, Assam	2	26
Colonel J. W. Waterhouse, Calcutta	282
Mrs. H. Wicks, Howrah	7
G. Marshall Woodrow, Esq., M.A., Poona	1	15
R. V. Woods, Esq. ...	1	...	28
Colonel Wylie, c.s.i., Khatmandu, Nepal	1	94
Messrs. Burn and Co., Howrah...	14
„ Macknight Anderson & Co, Calcutta	4	70
„ W. B. Mactavish & Co., Calcutta	6	78
„ Thomson & Co., Calcutta	140
Rajah of Khaira	2
Rajah Mohimaranjan Roy Chowdhuri Baha- dur, Raja of Kakina	16	309
Prince Noorudin Khan, Russapaglah	8
Linbill, Calcutta	6
Rai Prossunno Coomer Banerjee, Bahadur, Calcutta	1,870
Set Narainjee Dwarkdas, Malabar Hill, Bombay	4	76
Messrs. Gunputrai Liuchminarayan, Delhi	1	27
Babu B. B. Ghosh, Taki	10
„ B. B. Kupér, Burdwan Raj estate	2	14
„ B. G. Misra, Mankur	7
„ D. N. Bose, Sibpur	48
„ F. D. Roy, Howrah	100
„ G. C. Datta, Sibpur	20
„ G. C. Halidar, Serampore	30
„ H. C. Mittra, Coseipore	218
„ K. C. Palit, Calcutta	295
„ K. G. Missjm, Burdwan	13
„ K. P. Dass, Calcutta	18
„ Li. M. Mookerjee, Sibpur Library	100
„ Hi. M. Nundey, Calcutta	4
„ M. C. Ghosh, Barisal	8
„ N. C Chatterjee, Daulatpur	1	4
„ N. P. Datta, Howrah	100
„ P. C. Roy Chowdhoozy, Taki	3
„ R. B. Roy, Serampore	5
„ R. Malleah, Howrah	5
„ R. T. Roy, Calcutta	19
„ S. C. Ghosh, Calcutta	506
„ S. Deo Narayan Sing, Baligarh	8	294
„ S. P. Chatterjee, Calcutta	126
„ S. P. Ghosh, Calcutta	500

APPENDIX 11—concluded.

TO WHOM SEKT.	War- diaa cases.	Boxes.	Number of plants.
Babu T. O. Gossamy	10
Maulvi Wahidbux, Calcutta	14
Maulvi Ahmed Khan, Bahadur, Calcutta	4
„ Murfoodul Sock, Calcutta	3
Syed Abdool Sovan Chowdhury, Bogra	...	i	8
Shaik Sader Malee, thana Makooah	<	...	40
„ Ismile Malee	12
Pollaram Dass, Malee, Alipore	1
Hurnam Dass, Garden Reach	2
Mayadhur Ooriah, Sibpur	2
Grand Total	...	26	583
			43,619

APPENDIX III.

Statement showing seeds received from 1st April 1803 to 31st March 1893.

FROM WHOM RECEIVED.	Number of parcels or packets.
W. T. Thibault Dyer, Esq., F.R.S., C.M.C., Director, Royal Botanic Gardens, Kew, London ...	7
Director, Imperial Botanic Gardens, St. Petersburg, Russia ...	4
Director, Royal Botanic Gardens, Peradeniya, Ceylon	2
„ Botanical Department, Antigua	1
Botanic Garden, British Guiana	2
Ditto, Bangalore ...	5
Ditto, Grenada ...	3
Ditto, Hongkong ...	10
Ditto, Jamaica ...	5
Ditto, Saharanpur ...	61
Ditto, Singapore ...	8
Ditto, Trinidad ...	T
Ditto, Queensland ...	3
Ditto, Fiji ...	1
Ditto, Buitenzorg ...	1
Ditto, Durban ...	4
Ditto, Floriana ...	2
Ditto, Port Parwin ...	3
Baron Sir Ferdinand Von Mueller, L.O.M.O., F.R.S., University, Melbourne, Australia ...	17
Superintendent, Horticultural Garden, Lucknow ...	5
Ditto, Agri-Horticultural Society, Madras ...	2
Ditto, ditto, Rangoon	1
Ditto, ditto, Lahore ...	460
Ditto, Government Gardens, Cawnpore ...	1
J. Skyes Gamble, Esq., Commissioner of Forests, School Circle, North-Western Provinces and Oudh, Dehra Dun ...	1
Messrs. Begg & Dunlop, Ltd., Calcutta ...	2
W. Bunting Hemsley, Esq., Kew, London ...	12
Dr. T. Cooke, C.I.B., College of Science, Poona, Bombay ...	1
J. Henry Bivett-Oarnao, Esq., c.s., c.i., Ghazipur ...	1
J. Oammie, Esq., Government Cinchona Plantation, Munro ...	4
O. A. Oammie, Esq., Mungpoo	257
XL XJ. Tennig, Esq., Sunderbans, Bengal ...	1
H. H. Hildebrand, Esq., Fort Stedman, Shan Hills	3
Messrs. Kilburn & Co., Calcutta	1
J. L. Lister, Esq., Pashok, Darjeeling	2
C. Maries, Esq., Superintendent, Owal State Garden	1

APPENDIX *UL-conehtded.*

FBOM WHOM EBCEITED.			Number of parcels or packets.
W. O. Macpherson, Esq., as., Officiating Director of Land Records and Agriculture, Bengal...	...	...	6
E. H. Man, Esq., C.I.E., Port Blair	...	...	7
Dr. A. Milne	...	...	1
M. Naudin, Villa Thuret, Antibes	...	...	4
Messrs. Beasoner Bros., Manatee, Florida	...	...	3
A. F. Simeon, Esq., Calcutta	...	...	1
G. F. Wilson, Esq., F.R.S., Heather Bank, Weybridge Heath, near London	...	...	35
The Opium Agent, Bihar, Bankipore	...	...	1
Officiating Civil Medical Officer, Hazaribagh	...	...	1
The Deputy Conservator of Forests, Darjeeling Division	...	...	1
Academy of Sciences, California, San Francisco	...	...	6
Messrs. Dammann & Co., San Giovanni, Italy	...	...	48
Abdul Khalil, plant collector, Burma	...	...	17
Munshi Abdul Hock, plant collector, Burma	...	...	24
Bishumbhur Ghosh, Dakhinraripara, Taki	...	...	2
Pundit Balaba Balaji Nene, medioal practitioner	...	*)	1
Dadar Alii, Poona City, Bombay Presidency	...	J	2
Shaik Babuoollah, plant oolleotor, Andamans	...	...	2
Total			1,061

APPENDIX IV.

Statement showing seeds distributed from the Royal Botanic Garden during the year 1892-93

To WHOM SENT.			Number of parcels or packets.
His Excellency the Viceroy	...	...	201
W. T. Thiselton Dyer, Esq., F.R.S., CM.G., Director, Boyal Gardens, Kew, London	...	...	406
Director, Imperial Botanio Garden, St. Petersburg, Russia	...	...	155
Boyal Botanio Garden, Edinburgh	...	...	240
Ditto, Peradeniya	...	...	11
Director, Boyal Botanio Garden, Glasnevin, Dublin	...	...	222
Ditto, Botanio Gardens, Adelaide	...	...	4
Ditto, ditto, Athens	...	...	1
Ditto, ditto, Basel	...	;	1
Ditto, ditto, Berlin	...	...	3
Ditto, Botanical Department, Brisbane...	...	...	3
Ditto, Botanic Garden, Buitenzorg	...	...	13
Ditto, ditto, Cambridge	...	...	4
Ditto, ditto, Dublin	...	...	2
Ditto, ditto, Missouri	...	...	3
Ditto, ditto, Florence	...	...	2
Ditto, ditto, Malta	...	...	2
Ditto, ditto, Melbourne	...	...	2
Acting Director, Forests and Gardens, Colony of Mauritius	...	...	5
Director, Botanio Garden, Oxford	...	...	2
Ditto, Gardens and Public Parks, Cape Town	...	...	2
Ditto, Botanio Gardens, Pamplermousses, Mauritius	...	...	2
Ditto, ditto, Grenada	...	...	3
Ditto, ditto, Sydney	...	...	4
Ditto, ditto, Trinidad	...	...	5
Ditto, Colonial Botanio Garden, Wellington	...	...	2
Ditto, Vienna...	...	...	2
Ditto, Botanical Department, Northern India, Saharanpur	...	...	225
Director, Imperial Forest School, Dehra-Dun	...	...	2

APPENDIX IV—*continued.*

TO "WHOM BEKT.	Number of parcels or packets.
Director, Department of Public Gardens and Plantations, Jamaica ...	8
Director, Department Jard. Botan. Bio de Janeiro, Brazil	2
Ditto, de Jardin Bot., Madrid, Spain ...	1
Ditto, de Jardin Bot., Lisboa ...	1
Assistant Director of Agriculture, Government of Madras, Madras ...	2
Direktor, des bot. Garten, TJniversitat, Austria ...	1
Ditto, ditto, Miinohen, Germany ...	1
Ditto, Kgl. Bot. Garten, Berlin ...	154
Ditto, des bot. Garten, Bonn, Germany ...	1
Ditto, ditto, Breslau, Germany ...	1
Ditto, Bot. Garden, Darmstadt, Germany ...	1
Ditto, Bot. Garden, Dresden ...	1
Ditto, Bot. Garten, Strassburg ...	1
Direoteur, Jardin Botanique de l'Etat, Bruxelles ...	49
Ditto, du Jardin Botanique, Geneve ...	1
Ditto, du Jardin Botanique, Lyons ...	1
Ditto, Jardin des Plantes, Paris ...	3
Direotore, dell' Orto Botanico, Firenze ...	1
Ditto, dell' Orto Botanico, Palermo... ..	3
Ditto, dell' Orto Botanico, Napoli ...	1
Ditto, dell' Orto Botanico, Roma ...	1
Secretary, Agri-Horticultural Society of India, Calcutta	3
Ditto, ditto, Madras	3
Ditto, ditto, Rangoon	1
Secretary and Manager, Acclimatisation Society's Gardens, Brisbane ...	4
Superintendent, Duthie Park, Aberdeen ...	164
Ditto, Taj and Government Garden. Agra ...	4
Ditto, Nizam's Government Gardens, Auran- gabad ...	1
Superintendent, State Garden, Bangalore ...	3
Ditto, Victoria Gardens, Bombay ...	1
Ditto and Government Botanist, British Guiana ...	4
Superintendent, Memorial Garden, Gawnpore ...	4
Ditto, Cossipore Practical Institution of Horti- culture, Floriculture, and Agriculture, Cossipore ...	31
Superintendent, Botanic Garden, Ganesbkhand ...	1
Ditto, ditto, Hobart Town, Tasmania	2
Ditto, ditto, Hongkong ...	3
Ditto, Botanic and Afforestation Department, Hongkong ...	2
Superintendent, Agri-Horticultural Garden, Lahore ...	2
Ditto, Botanical Department, Leeward Islands	7
Ditto, Horticultural Garden, Luoknow ...	9
Ditto, Agri-Horticultural Society's Garden, Moulmein ...	1
Superintendent, Agri-Horticultural Society's Garden, Rangoon ...	4
Superintendent, Botanic Garden, Rookhampton ...	4
Ditto, ditto, Saharanpur ...	149
Ditto, ditto, Singapore ...	17
G. Maries, Esq., Gwalior ...	10
Curator, Botanical Stations, Antigua ...	2
Ditto, Lloyd Botanic Garden, Darjeeling ...	221
Ditto, Botanic Gardens, Durban ...	4
Ditto, Botanical Station, Fiji ...	4
Ditto, Botanic Garden, Glasgow ...	2
Ditto, Botanical Station, Lagos ...	2
Ditto, University Botanic Garden, Oxford ...	2
Ditto, Botanic Gardens, Port Darwin ...	22
Ditto, Botanical Station, St. Yinoent ...	2
Colonial Botanist, Botanical Department, Brisbane ...	2
Government Botanist, Botanic Gardens, Melbourne ...	2
M. Adolphe van den Heede, St. Maurice Lille, France	2
Babu Bijoy Upendra Bose, Paikpara Nursery ...	1

APPENDIX IV—continued.

TO WHOM BEST.	Number of parcels or packets.
Chairman, Municipal Garden Committee, Karachi ...	1
Messrs. Dammann & Co., Italy ...	2
Messrs. Haage & Schmidt, Erfurt, Prussia ...	2
„ Beasoner Brothers, Boyal Manatee, Florida ...	6
B. D. Hoyt, Esq., Bay view, Florida ...	2
Babu Hari Das Mitra, Vice-President of the Cosapore Practical Institution of Horticulture ...	1
Babu Nitya Gopai Mukerjee, Berhampur... ..	1
„ Opendra Chandra Singh, Bhagalpur ...	1
The Eathiawar Agenoy Engineer, Kajkote ...	2
District Engineer, Agra ...	1
„ Ditto, Rangpur ...	1
Executive Engineer, Balasore... ..	1
„ Ditto, Chota Nagpur Division ...	107
„ Ditto, Dogam, Ganjam district ...	1
Superintending Engineer, Bari Doab Circle, Dalhourie	1
Assistant Engineer, Purulia subdivision, Bengal-Nagpur Railway	45
Assistant Commissioner, Jowai ...	1
Civil Surgeon, Oaya ...	1
Conservator of Forests, Central Circle, Madras ...	2
Deputy Conservator of Forests, Dharwar ...	2
Extra Assistant Conservator of Forests, Ajmere ...	1
Assistant Superintendent, Port Blair, Andamans ...	1
Forest Officer, Port Blair, Andaman* ...	1
Collector, Azamgarh ...	1
„ Ditto, Puri ...	1
Deputy Collector, on special duty, Berhampore ...	1
Diatriot Forest Officer, Bellary ...	2
„ Ditto, Chingleput ...	2
„ Ditto, South Malabar ...	2
„ Ditto, Nellore ...	2
C. Curtis, Esq., Forest Department, Penang ...	e
Inspector, Salt and Abkari Revenue, Vizagapatem ...	1
Medical Officer, British Troops, Barraokpore ...	15
„ Ditto in charge, Station Hospital, Benares ...	14
„ Ditto ditto, Dum-Dum ...	4
„ Ditto, Paohbadra Salt Lines, Bajputan* ...	9
Superintendent, JaQ, Alipore... ..	1
„ Ditto, Central Jail, Bhagalpur ...	1
„ Ditto, Jail, Hazaribogh ...	1
„ Ditto, Jail, Malda ...	1
„ Ditto, Jail, Mymensingh ...	2
„ Ditto, Central Jail, Bajshahi ...	1
Jailor, Banohi ...	1
Lieutenant-Colonel H. Wylie, c.s.i., Political Agent, Nepal ...	25
Consul-General for Franoe, Calcutta ...	18
Robert Philip Heilgers, Esq., Austro-Hungarian Consul, Calcutta ...	127
Director of Land Beoords, Poona ...	1
District Traffic Superintendent, Bail way, Fatehgarh ...	2
Assistant Secretary, Board of Bevenue (Separate Revenue), Madras ...	1
Private Secretary to His Ezoellenoy the Governor of St. Helena ...	1
B. H. Haviland, Esq., Lahore ...	4
Colonel Hunter, Governor, Tokar distriot, Egypt ...	3
James C. Neal, Esq., P.H. C.M.D., Oklahama Experiment Station, Stillwater, Oklahama ...	4
Honoraity Secretary to the Counteas of Dufferin'B Fund, Bankura ...	16
Principal, College of Soienoe, Poona ...	2
Ordnance Officer in Charge, Fort William Aneiiial ...	2
Medioal Store-keeper to Government, Calcutta ...	5
Commandant of the Pakoka Battalion, Military Police, Pakoka ...	8
Booord-koeper, Deputy Commissioner's offioo, Meiktila	8

APPENDIX IV—*continued.*

To WHOM SENT.	Number of parcels or packets.
Lieutenant-Colonel H. 33. Abbott, Jodhpur ...	5
C. A. B. Anderson, Esq., Taliparah, Jalpaiguri ...	30
T. Allan, Esq., Panagor, near Burdwan ...	8
E. N. Atherton, Esq., Batticaloe, Ceylon ...	3
Sir Alex. Arbuthnot, K.C.S.I., India Office, London ...	58
Dr. J. Campbell Brown, Liverpool, England ...	45
The Hon'ble Lord Brownlow, Ashridge, Hertfordshire	67
lieutenant-Colonel H. Wilberforce Clarke (late), R.E., San Francisco ...	1
J. E. H. Crawford, Esq., Tjbban Estate, Saklasapur ...	1
John Crossley, Esq., Westminster ...	34
J. R. Connely, Esq., Perth, Western Australia ...	154
F. E. Durham, Esq., Calcutta ...	1
H. G. Elves, Esq., Andoversford ...	193
Alex. Forbes, Esq., Aberdeen... ..	42
Dr. M. Foster, F.R.S., Cambridge, England ...	20
Dr. E. F. Franceschi, California ...	5
J. Gammie, Esq., Mungpoo ...	5
C. B. Garrett, Esq., Calcutta ...	2
A. M. Gasper, Esq., Moradabad ...	2
Herr Paul Diote, Greiz, Germany ...	30
P. Hamburg, Esq., F.L.S., La Mortala, Italy ...	1
W. Harvey, Esq., Aberdeen ...	1
W. G. Head, Esq., Crystal Palace, London ...	7
W. W. Johnson, Esq., Manickchak, Malda ...	17
Hon'ble Mr. Justice O'Kinealy, Caloutta ...	78
H. M. Kinlook, Esq., Etawah, North-Western Provinces	1
Herrn Max. Liohtlein, Baden, Germany ...	106
Bevd. A. Logsdail, Chaibassa... ..	4
Messrs. H. Low & Co., Clapton Nursery, London ...	1
W. B. Mackenzie, Esq., Alipore Duars ...	1
E. H. Man, Esq., C.I.B., Port Blair ...	102
Baron F. Yon Muller, F.R.S., Melbourne ...	83
M. Naudin, Antibes, Alpes, Maritimes, France ...	12
Dr. G. Niven, Manchester, England ...	36
Bevd. Father Raphael, Saugor, C .P. ...	1
S. Bobson, Esq., Bankipore ...	2
Herr B. Reohenbach, Germany ...	27
Heir Emil Bitter Von Mayersbaoh ...	2
Captain J. Warner Buddaah, Caloutta ...	8
Messrs. Stanley Price & Co., Caloutta ...	114
A. Simpson, Esq., Caloutta ...	1
Bevd. S. F. Scobell, Mussourie, North-Western Provinces	37
Major-General H. L. A. Tottenham, Tasmania ...	2
Professor J. W. H. Trail, University, Aberdeen ...	1
B. Pantling, Esq., Mungpoo ...	46
Hon'ble Kevd. Arthur Pakenham, Longford Lodge, Crumlin, Ireland ...	119
David Prain, Esq., Fatteroairn ...	73
M. B. Weld, Esq., as., Kurnool ...	31
G. F. Wilson, Esq., F.R.S., Heatherbank, Weybridge, London ...	270
The Right Hon'ble Viscount de Vesci ...	*3
Postmaster, Diamond Harbour ...	12
Sub-Postmaster, Sibpur ...	2
Babu Abinash Chandra Banerjee, Allahabad ...	2
Daroga Abdul Ajij, Garden Reaoh ...	50
Babu Bissumbhur Ghosh, Taki ...	1
„ Devendranath Basu, Sibpur ...	20
„ Gopal Chandra Dutta, Sibpur ...	1
Munshi S. M. Ibraheem, Delhi ...	45
Pandit Jowala Dat Parshad, Lahore ...	1
Dr. S. Mahomed Hossein, Junagadh ...	L
Babu Mohur Singa, Dehra-Dun ...	2
Shahibzada Nooroodin Khan, Bussapagla... ..	2
N. N. Banerjee, Esq., Assistant to Director of Land Beoords and Agriculture, Bengal *	2
Babu Nandalal Bandhopadhya, JBalasore ...	1

APPENDIX IV—concluded.

TO WHOM BENT.			Number of parcels or packets.
Babu Nani Gopal Sen, Sibpur	...	...	3
U. Narasinga Rao, Mangalore	...	...	2
„ Purustum Dass, Government Engineering College	...	...	8
Alladin Shariff, Esq., Veraval, Kathiawar...	...	...	1
Shariff Salemahommed, Esq., Commerioal Agent, Juua-	...	...	1
h State, Veraval	...	...	1
B S. P. Chatterjee, Calcutta	...	...	2
„ Sboshi Bhusan Banerjee, Vattah	...	...	1
Total	...	...	<u>5,072</u>

APPENDIX V-

List shotting contributions to the Herbarium during 1892-93.

Herbarium, Royal Gardens, Kew (General)	...	...	2,200
C. B. Clarke, Esq., per Director, Royal Garden, Kew (Indian)	...	...	606
Herbarium, Imperial Garden, St. Petersburg (Turkestan and Brazilian)	...	...	218
Herbarium, Botanio Garden, Vienna (European)	...	...	600
Herbarium, Royal Gardens, Berlin (South Amerioan, African)	...	...	849
Herbarium, Royal Gardens, Leiden (Malayan Archipelago)	...	...	24
Baron Sir Ferd. V. Mueller, Melbourne University (Australian)	...	...	417
Herbarium, Botanic Garden, Singapore (Malayan Peninamla)	...	...	1,424
Government Museum, Ferak (Malayan Peninsula)	...	...	221
G. D. Haviland, Esq., North Borneo (Bornean)	...	...	1,144
Herbarium, College of Soienoe, Poona (Western Indian)	...	...	1,559
J. S. Gamble, Esq., Forest School, Dehra Dun (N.-W. Himalayan)	...	...	195
G. F. Scott-Elliott, Esq., (Egyptian)	...	...	121
G. Curtis, Esq., Forest Department, Penang (Malayan Peninsula)	...	...	269
C. G. Pringle, Esq., United States (Mexican)	...	...	273
General Sir H. Collett, X.C.B., Cherat (N.-W. Frontier)	...	...	76
Dr. Y. F. Brotherus Helsingfors, (Mopses, Genearal)	...	...	.5
Miscellaneous specimens (Indian)	...	...	13
Garden Collectors:—			
Mr. R. Pantling (Orchids of Sikkim)	...	...	1,600
G. Gammie (Independent Sikkim)	...	...	1,021
E. H. Man, Esq., C.I.E. (Andamans collections)	...	...	867
Dr. Prain (North Bengal)	...	...	68
Native Collectors, Botanical Survey of Burma	...	...	1,064
„ „ „ of Assam..	...	...	862
Total	...	...	<u>15,750</u>

APPENDIX VI.

List showing distribution of authentically named Herbarium Specimens during 1892-93.

Herbarium, Royal Gardens, Kew	...	...	1,063
British Museum, London	...	...	490
Saharanpur Herbarium	...	...	650
Royal Botanio Garden, Edinburgh	...	...	141
Ditto ditto, Peradeniya	...	...	23
Botanic Garden, Singapore	...	...	08
Government Central Museum, Madras	...	...	41
College of Science Museum, Poona	...	...	36
Government Museum, Perak	...	...	97
J. S. Gamble, Esq., Direotor, Forest School, Dehra Dun	...	...	49
C. Curtis, Esq., Forest Herbarium, Penang	...	...	8
Herbarium, Imperial Gardens, St. Petersburg	...	...	373
Ditto, Royal Garden, Buitenzorg, Java	...	...	117

APPENDIX VI—*concluded.*

Smithsonian Institution, Washington, U.S.A.	...	...	421
Imperial Museum, Vienna	...	...	150
Botanic Garden, Vienna University	...	...	265
Royal Botanic Garden, Berlin	...	...	302
Ditto ditto, Florence	...	...	447
Herbarium, Jardin des Plantes, Paris	...	...	261
Royal Herbarium, Leiden	...	...	250
Herbarium of the University of Cambridge	...	...	175
Ditto ditto of Upsala	...	...	228
Ditto ditto of Utrecht	...	...	156
Ditto ditto of Melbourne	...	...	180
Ditto ditto of Aberdeen	...	...	92
Herbarium of Owen's College, Manchester	...	...	187
M. A. de Candolle, Geneva	...	...	278
Colonel Beddome	...	...	682
Botanic Garden, St. Louis, Missouri, U.S.A.	...	...	10
Dr. J. H. Sandberg	...	...	68
Natal Botanic Garden, Durban	...	...	191
Queen's College, Cork	...	...	98
Total			<hr/> 8,787 <hr/>

G. KING, M.B., *Brigade-Surgeon, Lt.-Col.*,
Superintendent, Royal Botanic Garden, Calcutta.