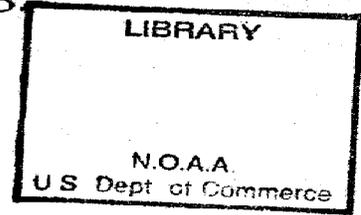
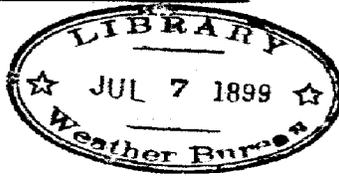


Council Paper No. 41 of 1896



ROYAL BOTANIC GARDENS.

Annual Report of the Superintendent for the
year 1895.

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*Laid before the Legislative Council on the
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ROYAL BOTANIC GARDENS.

Annual Report of the Superintendent for the year 1895.

Council Paper No. 41 of 1896.

M. P. No. 880/1896.

ROYAL BOTANIC GARDENS,

Trinidad, 1896.

SIR,

I have the honour to submit herewith the Annual Report on the working of the Botanical Department.

The year under review is from January to December, 1895, and the present forms the ninth report issued during my tenure of office.

The year under review has been a notable one, owing to the long period of drought experienced from January to October, and again remarkable for the excess in the Rainfall registered for October and November. The fall for November is no less than 8.29 inches above the average for 30 years, and is the greatest fall which has yet been registered for that month in our records. During a greater part of this period of drought the water supply was insufficient for garden purposes, and many of our trees suffered considerably, and the crop on the nutmeg trees was largely reduced in consequence, the nuts produced being of the smallest size.

2.—ESTABLISHMENT.

The staff during the year has remained the same as stated in last year's report. Mr. Massy was on short leave on two occasions.

The Superintendent was on service leave for one week to visit the Sugar Cultivation in the Demerara Gardens.

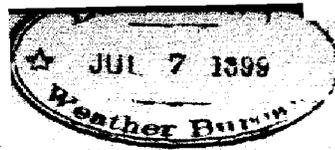
3.—METEOROLOGY.

The year just passed has shewn clearly the great necessity for a proper record of Meteorological occurrences, for it has certainly been one in which great extremes have taken place. Our station has been improved during the year by the addition of a Sunshine Recorder which was started to work early in the year, and also by the addition of a Thermometer giving the temperature six feet below the surface of the ground. The record for the year is given as an appendix to this Report, and the details of the Annual Rainfall as registered at 104 stations will be given in a separate report.

The details of the Sunshine Report are withheld from publication as they are not complete for the whole year, having commenced in February, 1895.

The Department is annually called upon to supply all the Meteorological details for the Blue Book of the Colony. It may be said that 1895 was a dry year, but we find in our Records the following:—

Dry years.			Wet years.		
1895	...	... 62.63 inches.	1886	...	... 86.82 inches.
1888	...	... 56.88 "	1865	...	... 85.29 "
1868	...	... 56.21 "	1890	...	... 82.90 "
1891	...	... 58.74 "	1880	...	... 82.84 "
1869	...	... 58.46 "	1876	...	... 81.95 "
1882	...	... 52.99 "	1874	...	... 76.28 "
1872	...	... 49.95 "	1871	...	... 75.58 "
1873	...	... 44.02 "	1889	...	... 73.79 "
1885	...	... 43.22 "			



It may be seen that although a great part of the early portion of the year was dry, the total was made up by the heavy falls of October and November, to an extent which brings the year's rainfall up so much as to place it at the head of the dry years, there being eight drier years during the 34 years Record, the lowest of which occurred just ten (10) years ago in 1885.

A comparison of our readings with that of the Record of the Public Gardens in Kingston, Jamaica, at an elevation of 60 feet above sea level is interesting.

Trinidad Station, 180 feet.	Mean Maximum.	Mean Minimum.	Rainfall.
	87.8	69.5	62.23
	Mean 78.6		
Jamaica Station, 60 feet.	Mean Maximum.	Mean Minimum.	Rainfall.
	87.1	70.5	85.99
	Mean 78.8		

4.—HERBARIUM.

The set of dried plants, eight hundred in number, mentioned in last year's report as being sent to Kew, have now been returned and have been arranged in their proper orders in the Department Herbarium.

A similar number will again be sent during the coming year for identification, these will include some of the more recently collected specimens which it is necessary to refer to authorities. There is however, a large number collected yearly which being easily identified are placed at once in the collection. The usual routine work of collecting, mounting and arranging has been duly performed, and several new species have been added to the Trinidad Flora; among these may be mentioned *Cynometra Trinitensis*, Oliver., a tree which though long growing in the Garden has not before been determined by authority. I may also mention the discovery of a new Fern found near Maracas Falls by the Superintendent several years ago which only produced fruiting fronds for the first time in 1895. This fern has been named *Polypodium (Phegopteris) trinidadense* by G. S. Jenman, Esq., of the Botanic Gardens in British Guiana, a gentleman who is well known for his writings on West Indian Ferns. Mr. Jenman has also named several new species of Ferns found by the Superintendent while resident in Jamaica several years ago. The cabinets now in the Herbarium are all full, and provision will have to be made during the coming year for further additions.

It is estimated that the number of specimens in the Herbarium exceeds 12,000 sheets.

In connection with the Herbarium work it may be mentioned that a microscopic study was made of the peculiar fungus to which a tree of *Ficus indica* "The Banyan" owed its death. Specimens of the wood were brought in and it was found that it was permeated in all directions by a microscopic fungus which caused dark stains in the wood and disintegrated the cells of the interior parts, depriving them of life. Specimens of this fungus were sent to the Royal Gardens, Kew, and have been examined by Mr. Massie who reports it to be a new species of parasitic fungus, which he calls *Eutypa erumpens*, from the curious way in which it produces its fructification from beneath the bark in blisters which, after the bark is ruptured, appear as black patches on the surface of the trunk and limbs.

It is considered by Mr. Massie that this fungus is quite capable of killing large trees. To those who would like to examine them I shall be glad to show microscopic slides cut from the wood of this tree which plainly show the cause of its death.

The wood in a natural state is without colour or stain, but when affected by fungus, it shews a "grain" which can be plainly seen with the naked eye. Organisms having the same character as this destructive fungus are daily becoming better known, and although utterly beyond the reach of those who do not use the compound microscope, yet their work is readily understood, and their destructive nature easily and most positively ascertained by its use. In this instance, nothing could be clearer and there cannot be a doubt left as to the character of the organism which destroyed the tree. In connection with this tree it may be stated that long before it was attacked by the fungus several plants had been successfully raised from it, two of which are now growing under the care of the Borough Council of Port-of-Spain.

CORRESPONDENCE AND DISSEMINATION OF INFORMATION.

The total number of communications sent out from the office of the Department during the year was 2,035. This is short of the previous year by 1,003. Circular Notes Nos. 15-30, or 16 numbers were issued at intervals during the year. These

are distributed to planters and others interested in agriculture resident in all parts of the Colony, and to other West Indian Gardens, free of charge.

I have to thank the local press for the regular insertion they have given to each issue of these notes, a favour, which I know has been appreciated by the public. A report on the Progress of the Minor Tropical Industries was requested of the Department by His Excellency the Governor, for the information of the Government of British Guiana, and when furnished was ordered to be printed and laid before the Legislative Council (June 4th, 1895,) for general information.

DECORATIVE WORK.

A very large amount of the labour at our disposal has to be devoted to decorative plants, for which there is a growing demand, and large quantities have to be specially grown. There is scarcely any public function held in Port-of-Spain without a demand for decorative plants, and these have been supplied throughout the year without charge, except for breakage or other damage. The supply of cut flowers has to be continuous, and at some periods of the year the maintenance of such a supply gives no little anxiety to the grower. Private growers can give their plants a rest from the knife at times, but in a public garden, its use is continuous, and the supply is therefore much harder to maintain. Besides the supply to the public, a regular service of decorative plants and flowers has been maintained at the residence of His Excellency the Governor. Plants loaned to the public numbered 1,112, while the total number in use for all purposes was 5,188.

FLOWER GARDEN.

That portion of the Botanic Gardens called the "Flower Garden" is situated immediately in front of the Governor's residence. The usual routine work has been duly carried out, and an improvement has been effected by fixing a new gate on the south fence facing the Savannah, which has been found a great convenience to visitors. Our Flower Garden beds suffer much for the want of an adequate supply of manure, and also from the robberies committed by the roots of the large number of trees with which it is filled. These roots when they penetrate the flower beds soon exhaust any manure which may be applied, and it is only by constant watching that they can be prevented from so doing. The growth of Gladioli reported on for 1894 was carried on with continued success during 1895, and the beds were again much admired. Owing to the dry season of 1895 the "corms" produced by these plants were of good size and ripened fairly, and though I consider them not to be trusted for a regular show of bloom during the coming year, they will, I hope, be of service in providing us with cut blooms, and they were planted in November in a suitable position with this view. The deluges of rain which occurred in November beat many tender plants to pieces, and at the latter end of the year the Garden did not present so good an appearance as usual.

Rondeletias and *Ivoras* as shrubs have flowered well, the former being of the greatest value as furnishing nearly all the year round an abundant supply of bloom. The large and handsome tree of *Araucaria Cookii* which has long been a feature of the front lawn, has this year put on an appearance of suffering, the cause of which is at present undetermined. This condition is, however, far from a singular one, and generally ends in the death of the tree attacked. Two or three "Saman" trees in the pastures are in a similar condition, and in their case also the reason is not apparent.

Sometimes we are called upon to state the cause of the death of a tree. While this can be sometimes done to a certainty, at other times to hazard an opinion as to the cause would be extremely unscientific, and probably erroneous, and is therefore never indulged in, unless there is *prima facie* evidence of some known disease.

It is not yet the custom for cultivators to avail themselves of the practice of laying all blame in diseases not readily diagnosed to that, as yet, hardly known quantity, "Malaria;" and yet it is quite possible that we have just as much right to do so, for it may be found that the diseases of trees, and the diseases of animals may be brought about by the same, or nearly related organisms, and in fact sufficient proof has already been brought to note to show that so called Malarial diseases are due in the main to specific organisms, although the life history of the latter may not as yet have been fully sought out and determined, and also that the vegetable suffers as fully from their attack as does the Animal Kingdom.

An effective display was made towards the close of the year by planting a set of three varieties of *Eranthemum*, having the yellow, purple and white variegations, in a serpentine and narrow bed on the front lawn. The contrast of the colours in the different varieties is well marked. Planted as they are in a mingled mass they show up well, and form a bed at once pleasing in character, and highly ornamental.

The following Orchids flowered in the Gardens during the year 1895 :—

<i>Aeranthus micranthus</i> . Reichb.	<i>Dendrobium crassinode</i> . Benson.	<i>Oncidium altissimum</i> . Sw.
<i>Aerides suavisimum</i> . Lindl.	" <i>Dearei</i> . Reichb.	" <i>ampliatum</i> . Lindl.
<i>Angraecum citratum</i> . Thou.	" <i>densiflorum</i> . Wall.	" <i>majus</i> .
" <i>Scottianum</i> . Reichb.	" <i>finbriatum</i> . Hook.	" <i>citrinum</i> . Lindl.
" <i>sesquipedale</i> . Thou.	" <i>latifolium</i> . H. B. & K.	" <i>haematochilum</i> . Lindl.
<i>Aspasia variegata</i> . Lindl.	" <i>mosehatum</i> . Sw.	" <i>Kramerianum</i> . Reichb.
<i>Batemannia Colleyi</i> . Lindl.	" <i>Pierardi</i> . Roxb.	" <i>Lanceanum</i> . Lindl.
<i>Bifrenaria aurantiaca</i> . Lindl.	" <i>suavissimum</i> . Reichb.	" <i>luridum</i> . Lindl.
<i>Bletia Shepherdii</i> . Hook.	" <i>superbum</i> . Reichb.	" <i>papilio</i> . Lindl.
<i>Brassavola cordata</i> . Lindl.	<i>Dendrobium-Phalaenopsis</i> Schroe-	" <i>Sprucei</i> . Lindl.
" <i> cucullata</i> . R. Br.	{ <i>deriana</i> .	<i>Ornithidium coccineum</i> . Salisb.
<i>Brassia caudata</i> . Lindl.	<i>Diacrium bicornutum</i> . Benth.	<i>Peristeria pendula</i> . Hook.
" <i> maculata</i> . R. Br.	" <i> indivisum</i> . Bradf.	<i>Phalaenopsis amabilis</i> . Blume.
<i>Broughtonia sanguinea</i> . R. Br.	<i>Epidendrum atropurpureum</i> . Willd.	" <i> Cornu-cervi</i> . Blume.
<i>Calanthe vestita</i> . Lindl.	" <i> ciliare</i> . Linn.	" <i> grandiflora</i> . Lindl.
<i>Camaridium ochroleucum</i> . Lindl.	" <i> cochleatum</i> . Linn.	" <i> Schilleriana</i> . Reichb.
<i>Catasetum Bungei</i> . R. Br.	" <i> elongatum</i> . Jacq.	" <i> sumatrana</i> . Korth.
" <i> tridentatum</i> . Hook.	" <i> fragrans</i> . Sw.	<i>Polystachya luteola</i> . Hook.
<i>Cattleya Dowiana</i> . Batem.	" <i> fulgens</i> . A. Brongn.	<i>Ponera prolifera</i> . Reichb.
" <i> gigas</i> . Linden & André.	" <i> Hartii</i> . Rolfe.	<i>Rhynchostylis retusa</i> . Blume.
" <i> labiata</i> . Lindl.	" <i> nocturnum</i> . Jacq.	<i>Rodriguezia secunda</i> . H. B. & K.
" <i> var. Gaskelliana</i> .	" <i> patens</i> . Sw.	<i>Saccolabium ampullaceum</i> . Lindl.
" <i> var. Mossiae</i> .	" <i> Schomburgkii</i> . Lindl.	" <i> retusum</i> . Voigt.
" <i> var. speciosissima</i> .	" <i> Spruceanum</i> . Lindl.	" <i> sp.</i>
" <i> Skinneri</i> . Batem.	" <i> Stamfordianum</i> .	<i>Schomburgkia undulata</i> . Lindl.
<i>Ceogyne flaccida</i> . Lindl.	" [Batem.	<i>Stanhopea grandiflora</i> . Lindl.
<i>Coryanthes macrantha</i> . Hook.	" <i> stenopetalum</i> . Hook.	<i>Stelis ophioglossoides</i> . Sw.
" <i> maculata</i> . Hook.	<i>Gongora atropurpurea</i> . Hook.	<i>Stenia pallida</i> . Lindl.
<i>Cryptarrhena pallidiflora</i> . Reichb.	" <i> white var.</i>	<i>Thunia Bensoniae</i> . Hook.
<i>Cymbidium aloifolium</i> . Sw.	" <i> maculata</i> . Lindl.	<i>Trichocentrum Hartii</i> . Rolfe.
<i>Cypripedium bellatulum callosum</i>	<i>Ionopsis utricularioides</i> . Lindl.	" <i> hymenantha</i> . Reichb.
[Reichb.]	<i>Laelia anceps</i> . Lindl.	" <i> sp.</i>
" <i> Harrisianum</i> . Reichb.	" <i> Digbyana</i> . Benth.	<i>Vanda teres</i> . Lindl.
" <i> Lawrenceianum</i> . "	" <i> purpurata</i> . Lindl.	" <i> tricolor</i> . Lindl.
<i>Cyrtopodium Andersoni</i> . R. Br.	<i>Lockhartia acuta</i> . Reichb.	<i>Vanilla grandifolia</i> . Lindl.
<i>Dendrobium aggregatum</i> . Roxb.	" <i> elegans</i> . Hook.	" <i> phaeantha</i> . Reichb.
" <i> albo-sanguineum</i> .	<i>Macradenia lutescens</i> . R. Br.	" <i> planifolia</i> . André.
[Lindl.]	<i>Maxillaria alba</i> . Lindl.	<i>Xylohium hyacinthaeformis</i> .
" <i> anosmum</i> . Lindl.	" <i> sp.</i>	[Lindl.]
" <i> bigibbum</i> . Lindl.	<i>Miltonia spectabilis</i> . Lindl.	<i>Zygopetalum cochleare</i> . Lindl.
" <i> chrysanthum</i> . Wall.	<i>Notylia incurva</i> . Lindl.	

NOTE.—The names given are those attached to the plants when received either by purchase or exchange.

ROADS, WALKS, DRAINS, &c.

A considerable area of walk in the Nurseries has been paved with cobble stones from the "Dry River."

This saves frequent wash and in the end is more economical than gravelling. In the same way it is found much better to construct neat dipping tanks of concrete than to have to be constantly supplying the leaky and unsightly wooden tubs formerly in use.

The dividing walks of the nursery have been relaid with stone edging, straightened and properly graded.

VISITORS.

The number of visitors who recorded their names at the office during the period under review was 347, which is below the number for the previous year.

Among the names on the book are those of the Right Honourable the Earl of Lathom, and the Ladies Wilbraham, the Countess of Leitrim and daughters, Colonel Green, L. D. Barber and Miss Barber.

A vote of £50 for Garden seats was expended, and some 40 new seats provided, which add greatly to the comfort of the visitors.

Proposals for providing a bandstand and a retreat for visitors in case of showers were submitted to the Government by this office during the year.

The living specimens of snakes, porcupine, electric eel and land turtle are objects of interest to visitors. The collection has lately received some few additions.

In the Annual Report for 1888 was mentioned the need that existed for a small Guide-Book, describing points of interest for the information of visitors, and in an Appendix to that report a short sketch was given which it was intended should be amplified and extended when opportunity offered, so as to put into more handy form.

I am pleased to be able to report that this has at last been done under my direction by the Assistant Superintendent, Mr. Wm. Lunt. It was issued from the Government Printing Office during September, 1895, and may be obtained at the Garden's Office at sixpence per copy, it is written in a chatty style and forms a neat little booklet of some 40 pages. It was not the intention to present an exhaustive book, but rather, to point out some of the chief items of interest in as clear and

concise a manner as possible, and I trust it may be found an acceptable method of conveying information to visitors.

Towards the close of the year an order was sent to England for a number of enamelled iron labels of handsome design giving scientific and vernacular names and native countries, these have now (February, 1896) been put in place and greatly enhance the interest of a walk through the grounds with the aid of the Guide.

NURSERIES.

The arrangement of the plants in the nurseries has undergone a thorough revision during the year, and many improvements have been effected.

A new tool shed has been erected in the same locality as the potting shed built last year, so that all the garden buildings are now in one block, and all potting and packing of plants can be carried on with greater facility than hitherto. The foundation has been laid for the extension of the present glass house and it is hoped to complete this during the coming year.

It is also intended to erect proper sheds for the growth of Orchids so as to keep the collection of botanical and specimen plants separate from the collection which is maintained for the purposes of distribution.

A large tank or pond was partially constructed during the past year, which is intended for the growth of "Water Lilies" and other aquatics. In this pond I trust we shall be able to grow the *Victoria Regia* and other fine plants, for which we had previously no suitable home. A re-arrangement of the Fernery has also been made which has greatly improved the appearance of that quarter.

The number of plants on hand has been fully maintained and the garden receipts for the year amounted to the sum of £339 4 8.

In the following tables will be found the details of distributions made:—

It is estimated that not less than 150,000 plants are now in stock in the nurseries.

Table I.—Distribution of Plants and Seeds in Exchange, 1895.

Where Distributed.	Plants.	SEEDS.	
		Countable.	Packages.
To places abroad	1,702	1,840	309
„ inland	1,546	...	...
Totals	3,248	1,840	309

Table II.—Plants and Seeds received in Exchange, 1895.

Whence received.	Plants.	Packages of Seeds.
From places abroad	417	504
From places inland	16	2
Totals... ..	433	506

Table III.—Plants, Seeds and Flowers, purchased and sold, 1895.

PURCHASED.		SOLD.		
Plants.	Packages of Seeds.	Plants.	Bouquets & Wreaths	Countable Seeds.
2,043	139	8,837	45	900

Table IV.—Total list of Plants, Seeds & Flowers distributed by Sale & Exchange, 1895.

Plants.	SEEDS.		Bouquets and Wreaths.
	Countable.	Packages.	
12,085	2,240	309	45

BULLETIN.

The issue of the Bulletin has been again regularly maintained. The articles in it for 1895 were sixty-six in number and treated on the following subjects:—

- | | |
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| <p>No.
90.—The Parasol Ant.—(<i>An exterminator.</i>)
91.—Coffee Machinery. (L.)
92.—The Mangosteen.—(<i>Garcinia Mangostana.</i>)
93.—The Mango.—(<i>Mangifera Indica.</i>)
94.—Circular Notes.
 No. 10.—Banana Disease.
 " 11.—Cane Disease.
 " 12.—New Canes.
 " 13.—Kola Nut.
 " 14.—An Animal Parasite,
95.—Cane Disease.—(<i>Martinique.</i>)
96.—" Para Rubber."—(<i>Hevea Brasiliensis,</i>
97.—Natural History Notes. (Muel.)
 1.—Note on the "Mygale."
 2.—A Forest Rat.
 3.—The Mosquito Worm.
 4.—An Orchid Beetle.
98.—The Chrysanthemum.
99.—Nicaraguan Cacao Shade.
100.—The Cashew and Poultry.
101.—"Cassava."
102.—Bermuda Arrowroot.
103.—The Peach Palm—(<i>Guiljelma Speciosa,</i>
104.—A Freak of Nature. (Mart.)
105.—Circular Notes—Nos. 15 and 16.
106.—Piper ovatum, Vahl.—"Poutt."
107.—Simaba Cedron.
108.—Spathelia simplex, L.
109.—Sabal mauritiformis, Gr. and Wendl.
110.—Coccidæ, or Scale Insects.
111.—Oreodoxa regia, Kth.
112.—A Sunshine Recorder.
113.—The Botany of a Tree.
114.—Natural History Notes.
 No. 5.—The "Manicou."
 " 6.—The "Manicou Gros Yeux."
 " 7.—Actinopus scalops.
 " 8.—Pseudidiops Hartii. (Pocock.)
 " 9.—Argiope argentata.
115.—Aristolochia gigas, var, Sturtevantii.
116.—Flowering of the Bamboo.
117.—Our Garden Soil.
118.—Roses.
119.—"Yams."
120.—The Gardens Ordinance.
121.—Attalea Cohune.
122.—"Kola."
123.—Eucalyptus."
124.—Bletia Shepherdii.
125.—Sugar Cane Experiments.
126.—Herbarium Specimens.
127.—Circular Note No. 17.
 " " " 18.</p> | <p>No.
 Circular Note No. 19.
 " " " 20.
 " " " 21.
128.—Lawn Mowers (with figures).
129.—Acacia spadicigera.—(<i>Cham. & Schlecht.</i>)
130.—Hippomane manicella.
131.—Natural History Notes.
 No. 6.—Caccotrypes dactyliperda.—
 " 7.—Habit of a "tiger beetle." [Fabr
 " 8.—Coccidæ.
 " 9.—A New Ant.
 " 10.—Peripatus.
132.—The Asphyxiator.
133.—Disease.
134.—"Sarsaparilla."—<i>Smilax officinalis, Kth.</i>
135.—Native Bamboo.
136.—Averrhoa carambola.—Linn. [D.C.
137.—The Candle Tree.—<i>Parmentieria cerifera,</i>
138.—Asclepias currasavica.—Linn. "Red
139.—Lucuma mammosa.—Gr. [Head.
140.—Cyrtopodium Andersoni.—R. Br.
141.—Sisal Hemp.
142.—Bougainvillea spectabilis.—Willd.
143.—Vitality of Seeds.
144.—Coffee Machinery (with figures).
145.—Trinidad Diacriums.
146.—"Wallaba"—<i>Eperua falcata, Aublt.</i>
147.—Bignonia unguis, L.
148.—Natural History Notes.
 No. 13.—Destruction by Bees. <i>Trigona</i>
 " 14.—The Hunter Ant. [sp.
 " 15.—Siphonotus purpureus, Pocock.
 " 16.—Porphyropsis sp.—"Tortoise
 [Beetle."
 " 17.—Stictoplastis ravidus, Simon.
 " 18.—Phalagium cosmetus pictus,
 [Reitz.
 " 19.—Planarium sp.—Land Leech.
 " 20.—"King Cockroach," "Electric
 [Bug.
 " 21.—"The Gru-Gru Worm."
 " 22.—New Coccidæ.
149.—A New Fungus.
150.—Cassava or Manioc.
151.—New Miniature Sunflower.
152.—Circular Notes.
 No. 22.—A Cane Pest.
 " 23.—A Flight of Parasol Ants.
 " 24.—The Cockchafer or May Bug.
 " 25.—The larger species of Parasol
153.—Lagerstrœmia Flos Regiæ. [Ants.
154.—Local Plant Names.
155.—Piper ovatum. (<i>Dunstan and Garnett.</i></p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

With the exception of one extract No. 155, all of the above articles are from the pen of the Superintendent. The circulation of the Bulletin has again steadily increased and no pains will be spared to make it a useful publication to those interested in Agri-Horticultural pursuits. It has already secured high commendation from several influential sources, and it is hoped that the present character will be fully maintained in future issues. In the unbounded field of nature, a theme can never be wanting, but it is of course a heavy task for a single pen to supply original material for regular issues, and the Superintendent would be glad of assistance from writers willing to supply articles on practical or theoretical agriculture or natural History.

ECONOMIC SECTION.

Although the Botanic Gardens "Bulletin" and "Circular Notes" discuss many details of the economy of Agriculture and Horticulture, yet there are several cultures which I find must not be unnoticed in the Annual Report as its distribution in some directions is far wider than that of the Bulletin, which is chiefly intended for local circulation. First among these cultures stands "Sugar" and a short review of what has been done in connection with this industry, will I trust, prove interesting. It will be remembered that at the Agricultural Society's meeting of the 11th December, 1894, a resolution was passed in the following terms:—

"That in the opinion of this committee it is desirable to establish at once a
 "small experimental plot for growing and testing seedling varieties of
 "cane, and that a Sub-committee of three be appointed to carry out
 "this object."

The Sub-committee met, and it was unanimously decided that a small experimental plot should be started at the Royal Botanic Gardens under the immediate supervision of the Superintendent, and this course was recommended in the report of the committee which was adopted by the Society in March, 1895. The sub-committee recommended that this course was advisable for the following reasons:—

- 1st. To test the value of the seedlings in comparison with older varieties of sugar cane.
- 2nd. To prove their suitability for cultivation in our climate and soil.
- 3rd. To provide a depôt for the supply of plants for extended cultivation.
- 4th. To test the value of manure in all stages of the growth of the cane.

It was stated in my annual report for 1894 that several varieties of seedling canes had been received from Demerara, and some from Barbados.

The culture of these varieties has been conducted with the greatest care and the reasons for the establishment of the cultivation, as given above, have been kept most fully in view, especially the first, as it is considered that the object should be to select the best canes out of the many varieties, so as only to propagate those which give promise of the best yield. After this is fairly ascertained, the next object will then be, to test their suitability for culture in Trinidad. It is well known that the soil at the Gardens is of the very poorest class, but this will, we think, be not a little advantage in the forthcoming trials, as canes that will grow and produce good results on such a soil, can hardly fail to do so when planted in better lands. Thirdly we shall endeavour to supply all requisitions for plants on equal terms, working up for the purpose a stock of plants which will be distributed at a stated time to applicants, so that all may start their culture at the same time, and no advantage will be afforded to one more than another. It is expected that it may be possible to give the results of the first year's trial in an appendix to this report, but in case this work cannot be carried out in time, I may now state that I have received information from Messrs. Jenman and Harrison that the previous results have been fully confirmed by the crop which has been reaped in the British Guiana experiment grounds during 1895. These results show that there are several canes among the seedlings which give a return so far surpassing the Bourbon and other older varieties as to induce the hope that by their extended culture, the sugar industry will receive a substantial benefit, one, sufficient of itself to disperse the gloomy views which have lately been held as to its future. It would appear that the trials of the different manures need not be carried out with haste, as the work of the Demerara experimentalists shows in a most complete and forcible manner, the direction in which success lies, and that all that need be done, at least at present is, to prove by experiment that the same manure can be used in the Trinidad as on the Demerara soils; but even this trial on the experimental grounds will, I fear, not be sufficient for all wants, inasmuch as the character of the soil on Trinidad estates varies in a large degree, and what would be suitable on one, would not be applicable to others.

Extended trials should therefore be made by the planters themselves, on the various soils, but if they submit to be guided by the results obtained in Demerara, it will, I feel assured, conduce to greater success in the matter of cultural proceedings.

The destructive character of the cane fungus *Trichosphaeria sacchari*, has been accentuated by the fact that it has, during 1895, been found present on estates in British Guiana, where a considerable loss is attributed to its action. As mentioned in last year's report "further observation is still required to show the full extent of its spread, and the measure of its destructiveness." I have received reports from some, that burning the fields have lessened the amount of damage, but on the other hand it has been shown that the burnt areas when replanted have again been badly attacked.

Our seedling canes were planted on and near to a spot on which canes infected with disease had been growing, for the purpose of showing their power of withstanding attack. During 1895 the land on which they were grown was carefully cultivated and the canes were "trashed" at frequent intervals.

The disease is however present in a minor degree in all, but to some varieties little harm has been done, and only one or two really rotten canes have been found.

This fact points the way for further improvement, for it is possible that we may be able to select from the varieties under trial some kind, or kinds, which will really be disease resisting varieties, and large sugar producers. I mentioned in my last report that the cane plot would be given good cultivation, to test whether it would have any effect on the progress of *Trichosphaeria*. It is, I think, quite clear from the appearance of the canes, that the attention given them has not been in vain, and that the fungus has, in consequence, been kept in check; as there is certainly, not so much disease in the plot as there was during the previous year. The attack by "termites" or "white ants" however still continues, and many canes are cut off at or slightly above the ground line.

The element of *yield per acre* must be well considered in conducting an experiment of this kind for a cane yielding high saccharine contents, may be a poor cropper, while a cane yielding moderate sugar contents may give a very large weight of cane to the acre, and thus be more profitable to grow than one yielding higher sugar contents. It would appear desirable therefore, first to select the varieties having high sugar contents, and from these secondly to select those of a vigorous constitution and disease resisting power, and thirdly, those which will afford the largest yield. These objects are well brought out by Messrs. Harrison and Jenman of British Guiana in their reports, and it cannot be doubted that it is the proper plan to secure the best results, as it is one which has long been followed by the Agri-Horticultural world in European countries, in dealing with numerous economic plants and especially with the sugar beet, with unvarying success. To fully carry out the idea, it is however necessary to take seeds again and again from the best seedling and other canes after test, and by that means ultimately secure varieties of the very highest class, 1st as sugar producers, 2nd as disease-resisting varieties, and 3rd as crop producers.

Why sugar producers are placed first is, that by their use, a larger crop of sugar is produced from a less number of tons of cane; and therefore labour all round, in both culture and manufacture is reduced. Disease-resisting varieties are placed next, for it is certain that if we have a cane giving a high yield of sugar, but liable to be attacked by disease, the actual yield to the planter will certainly be less than with a kind producing less sugar, but not suffering from disease. Canes as "crop-producers" have been placed last in view, as it is evident that a heavy yield of canes, inferior as sugar-producers, will lay a great burden upon the planter for carriage. A heavy yield by a high sugar producing cane is therefore the *ultima thule* of the planter.

Altogether the outlook for the Sugar planter in so far as regards seedling canes, appears to be a very promising one, and especially so, as it can be shown in reports from Louisiana and British Guiana that canes are now in cultivation, which have, for four years in succession, not only given as many tons per acre as the Bourbon, but have given an increased yield of sugar contents over that variety while maintaining a good disease resisting form of growth. There can therefore be little doubt that the sooner the older varieties are replaced by the best of the seedling kinds, the better for the sugar industry; as it must now be conceded that these varieties are, especially in some districts and in some soils, distinctly inferior to the newer kinds. There is also another point which will not be lost sight of in conducting the cane experiments. It has been noticed that some of the newer canes mature much more rapidly than the older varieties, and one special kind is under observation, which has, under seven months, produced canes nearly twice the length of the other varieties planted at the same time, and I have to-day tested the specific gravity of the juice from a cane taken from the "stool" when it gave 1.040 by balance, not a high density by any means, but still, somewhat remarkable for the time of growth. There are at least eight or nine canes of the same size and length, at each stool, grown from cuttings (tops) planted 8th June, 1895, and consequently six months and twenty-two days old on 1st January, 1896. Such a cane I take it would be invaluable to the planter as a "supply" cane. The probability is that the density of its juice will improve with age so as to render it little less in value than that from standard kinds at crop time in March.

Our work with regard to the Cacao Industry this year has been mainly that of attending carefully to the imported plants of the Nicaraguan and Ceylon kinds.

CACAO.

It will be remembered that young plants of the Nicaraguan Cacao were imported in 1893, so that in July 1895, they were two years old. Shortly after this period several of the plants produced flowers, but none have as yet produced pods, our tallest tree being about 8 feet in height. One of the plants of Ceylon Cacao that was imported about the same time, has also flowered, and has now, at the time of writing, (December 1895) two small pods set upon it. This has long been desired for comparison with our own varieties, and to enable our planters to know really what the classing of the Ceylon kind should be in comparison with their own produce. The health of the trees of the Nicaraguan and Ceylon varieties is everything that could be desired.

Of the number of plants of *Cacao bicolor* only one is growing vigorously; but several others are growing slowly, and may do better later on. The plants of *Theobroma angustifolia* are doing well, and I trust will, in a few years be large trees. During the year, a case of the Nicaraguan varieties was successfully forwarded to the Royal Botanic Gardens, Peradenya, Ceylon. These plants were a part of those brought by the Superintendent from Nicaragua in 1893.

TOBACCO.

It will be remembered that several years ago the Government introduced, at some expense, Mr. Thomas Sosa Wanguermert, a native of Cuba for the purpose of instructing persons in the curing and growing of Tobacco.

Mr. Wanguermert, after conducting some experiments for the Government, determined to settle upon lands in the vicinity of Siparia for the purpose of continuing this culture on his own account. He exhibited some well cured tobacco at the Agricultural Show held in October 1895, for which he received a special prize, and he is now making a class of cigars which are of good quality, manufactured from tobacco grown from Cuban seed, for which he obtains ready sales at good prices in the local market. It is also found that quantities of well cured tobacco are coming into the local market from this district, which have been cured after the manner taught by Mr. Wanguermert, and it is hoped that in time a profitable industry may be established, as it is certainly proved that a good quality of cigar-making tobacco can be grown in Trinidad.

COFFEE.

Our experiments with coffee during 1895 were principally directed to showing cultivators the best method of culture and mode of pruning for the ordinary *Coffea arabica*. Coffee growing, as carried out in Ceylon, Jamaica, Costa Rica and other coffee growing countries is but little understood by the planting community in Trinidad, and few can yet be induced to plant coffee by itself and for its own yield. Instead, the usual course is to put in coffee where cocoa will not grow, or to put it, in fact, in ground that is useless for anything else, or to plant it in desultory manner through and amid other crops, or by the roadsides of estates.

It cannot be expected that coffee planted and treated in this manner will thrive or pay the grower, even for the small amount of care he devotes to it.

To show what could be done, the culture of a small section of coffee trees in the Royal Botanic Gardens, was personally undertaken by the Superintendent, the Jamaica system of pruning and culture was fully adopted, and the trees kept down to a certain height. Although the practice only commenced eighteen months ago, the trees now bear evidence that the method we have adopted is one which should be followed if true success in coffee culture is to be the ultimate result. Trees under this system have given over four pounds, and one tree gave over seven pounds of clean coffee.

Lectures were given on the system during the month of August, and the trees were seen under crop by those gentlemen who attended. Later in the year I was invited to the Santa Cruz district to see the working of a small machine, which had been imported for pulping coffee, called the "Columbia pulper," manufactured by Messrs. J. Gordon & Co. of London.

I found Coffee was being grown on this estate in direct compliance with the instructions laid in the Departmental Bulletin, No. 14, July 1891, and in December, 1895, good crops of prime coffee were being reaped. The little machine was doing excellent work in pulping the coffee, and they had in use also, a small "Smouts cleaner and polisher," manufactured by the same firm. It was evident that these two machines are all that planters require for a small number of trees, and that by their use Coffee can be prepared in an excellent manner.

Coffea stenophylla. From seed of this new variety of Coffee, sent to the Gardens from Kew, a number of plants have been raised. Some of the larger plants have been planted in permanent positions, and are now over three feet in height, and, it is expected will flower in a few weeks, for the first time.

LOGWOOD.

The returns from the cutting of Logwood trees in 1894 came to hand early in the year 1895.

The consignment sent to Europe realized £7 16s. per ton, which shows that Trinidad logwood is of excellent value, and little inferior to any that is put upon the market. I have lately had an opportunity of seeing trees which were planted three years ago, on an estate near the borders of Montserrat district, which have done remarkably well.

These trees have already produced quantities of seed, and the owner is so satisfied with their growth that he is extending the culture on a much larger scale. It is to be regretted that so few are inclined to follow this excellent example, for once planted the trees practically take care of themselves, and cost little or nothing for upkeep. They will grow also under circumstances where many other cultures would assuredly fail, and take kindly to soils of very indifferent character.

UNCARIA GAMBIR.

The plants received from Kew which we noted in the Annual Reports for 1893 and 1894 are still living, but do not make much progress.

A consignment of seed was received during the present year also from Kew, and I am glad to be able to report is growing freely. This is the first time that the seed has germinated in our nurseries, although we have several times before received packets. It is possible that seedlings may thrive better than the imported plants have done, and enable us to judge of its suitability for growth in our climate on an extended scale.

VANILLA.

In December we harvested a small quantity of Vanilla from the plants of Sion House and Mauritius varieties, *Vanilla planifolia*, Aud. On one bunch we ripened (51) fifty-one "beans" or "pods," weighing considerably over one pound when cut from the plant. The bunch of flowers from which these were produced were hand fertilized by Mr. Lunt, the Assistant Superintendent.

The quality of this Vanilla leaves no doubt that it is the best variety or species obtainable for West Indian cultivation.

RUBBER.

The demand for plants of *Castilloa elastica*, the Central American Rubber is increasing, and we have sold all we could raise. The tree thrives well in Trinidad, and I trust ere long that we may have an account of the actual yield of trees ready for publication, for the further guidance of planters.

J. H. HART, F.L.S.

Superintendent Royal Botanic Gardens.

18th February, 1896.

The Honourable
THE COLONIAL SECRETARY.

APPENDIX I.

Plant and Seed Distribution and Exchange.

Plants and seeds were distributed to the following correspondents during the year :—

Royal Gardens,	...Kew.	M. Aristakes Azarian	...Constantinople.
Botanic Gardens	...British Guiana.	Captain Smith	...Barbados.
" "	...Grenada.	J. Gordon & Sons	...England.
" "	...St. Vincent.	M. Sokolowski	...Colon.
" "	...Antigua.	Vilmorin Andrieux & Cie	...France.
" "	...Jamaica.	Dr. Ernst	...Caraccas.
" "	...Peradeniya, Ceylon.	F. Beyrinns	...Martinique.
" "	...Aburi.	Lady Maud Wilbraham	...England.
" "	...Lagos.	Countess of Leitrim	... "
" "	...Queensland.	J. O'Brien	... "
" "	...S. Australia.	Sydney Courtauld	... "
" "	...Melbourne.	Hugh Low & Son	... "
" "	...Sydney.	Baron H. de Worms	... "
" "	...Hong-Kong.	J. B. Beach	...Florida, U.S.A.
" "	...Calcutta.	Dr. Morton	...Trinidad.
" "	...Java.	Canon Trotter	... "
" "	...Mauritius.	Mr. Harding-Finlayson	... "
" "	...Bangalore.	Drill Hall	... "
J. Veitch & Son	...Chelsea, England.	Dr. Tulloch	... "
		M. Millington	...Tobago.

APPENDIX II.

Plants and seeds were received from correspondents according to the following list, which forms annually a permanent record of introductions made, and is also an acknowledgement to our correspondents in the various Institutions which favour us with exchanges, and present similar returns :—

Names.	Names.
From Royal Gardens Kew.	From Royal Gardens Kew.—Continued.
<i>Prosopis oblonga</i>	<i>Amorphophallus</i> sp. Ceylon
<i>Æschynanthus Hildebrandii</i>	<i>Anthurium Bakerianum</i>
<i>Bambusa Oliveriana</i>	" <i>Gaudichaudianum</i>
<i>Atriplex vesicarium</i>	" <i>Scherzerianum</i>
" <i>halimoides</i>	<i>Arisema filiforme</i>
<i>Musa sumatrana</i>	" <i>fimbriatum</i>
<i>Uncaria gambier</i>	<i>Bambusa arundinacea</i>
<i>Allamanda Williamsi</i>	<i>Begonia semperflorens</i> var. <i>gigantea rosea</i>
<i>Alphitonia excelsa</i>	" " " <i>rubra</i>
<i>Anthurium Andreanum</i>	" " " <i>Vernons</i>
<i>Antiaris innoxia</i>	Canna " <i>Madame Crozy</i> "
<i>Aristolochia gigantea</i>	" " <i>President Carnot</i> "
<i>Asystasin scandens</i>	<i>Carex brunnea</i>
<i>Atalantia monophylla</i>	" " var. <i>variegata</i>
<i>Balsamodendron Roxburghii</i>	" <i>Morrowi</i>
<i>Bougainvillea glabra</i> , <i>Sanderiana</i>	<i>Carludovica latifolia</i>
<i>Calamus intermedius</i>	<i>Ceropegia Sanderiana</i>
<i>Camcensia maxima</i>	<i>Chrysanthemum pinnatifidum</i>
<i>Coffea</i> sp. <i>Lagos</i> , " <i>Abeskuta</i> "	<i>Crinum giganteum</i>
<i>Coffea</i> , " <i>Hybrid Mocha</i> "	" sp. <i>India</i>
<i>Copaifera Mopane</i>	<i>Curcuma</i> sp. <i>Calcutta</i>
<i>Didymosperna distichum</i>	<i>Cyperus Meyenianus</i>
<i>Otaheite Potato</i>	<i>Dendrobium-Phalcnopsis Schroederiana</i>
<i>Drymoplicus appendiculatus</i>	<i>Eucharis candida</i>
<i>Ilex nigro-punctata</i>	<i>Gesnera cardinalis</i>
<i>Irvingia Barteri</i>	<i>Höemanthus Kalbreyeri</i>
<i>Macaranga</i> sp. <i>Gambia</i>	" <i>Katherine</i>
<i>Myrialepis Scortechini</i>	" <i>natalensis</i>
<i>Pandanus pacificus</i>	<i>Hedychium spicatum</i>
<i>Passiflora atropurpurea</i>	<i>Hymenocallis amancaes</i>
<i>Pinanga</i> sp. <i>nr. P. coronaria</i>	<i>Kniphofia Northii</i>
<i>Pritchardia Thurstoni</i>	<i>Lomatophyllum borbonicum</i>
<i>Solanum Wendlandi</i>	<i>Lycoris aurea</i>
<i>Styrax Benzoin</i>	" <i>sanguinea</i> , var.
<i>Talauma Candollei</i>	<i>Macrozamia spiralis</i>
<i>Thunbergia grandiflora alba</i>	<i>Musa Basjoo</i>
<i>Vanilla</i> sp. (? <i>Africana</i>)	" <i>sumatrana</i>
<i>Aglaonema simplex</i>	" <i>textilis</i>
<i>Aloe</i> sp. <i>s. Arabia</i> (<i>Hadramaut Expedition</i>)	<i>Orchid</i> , No. 218, <i>s. Arabia</i> , (<i>Hadramaut Expedition</i>)
<i>Alpinia calcarata</i>	

APPENDIX II.—Continued.

NAMES.	NAMES.
From Royal Gardens Kew.—Continued.	From Botanic Gardens, Adelaide.—Con.
<i>Peliosanthes humilis</i> <i>Sansevieria Ehrenbergii</i> " <i>guineensis</i> " <i>Kirkii?</i> <i>Stenomesson incarnatum</i> <i>Tacca pinnatifidum</i> <i>Strobilanthes Kunthianus</i> <i>Rubus ellipticus</i> <i>Echinocactus Wislizeni</i> <i>Nymphaea gigantea</i> <i>Pedaliium murx</i> <i>Araucaria Bidwilli</i> ("Bunya Bunya") <i>Cinnamomum zeylanicum</i> <i>Aristolotelia racemosa</i> Seeds. <i>Somaliland</i> . Miss Cole <i>Parkia africana</i> <i>Pennisetum typhoideum</i> <i>Pithecolobium polycephalum</i> <i>Cyrtanthus obliquus</i>	<i>Hakea laurina</i> " <i>uliginosa</i> " <i>acicularis</i> <i>Callistemon rigidus</i> <i>Lophostemon australe</i> <i>Clerodendron tomentosum</i> <i>Elceodendron australe</i> <i>Nephelium leiocarpum</i> " <i>tomentosum</i> <i>Spondias solandri</i> <i>Dracaena australis</i> <i>Hymenanthera augustifolia</i> <i>Syncarpia laurifolia</i> <i>Stenocarpus sinuatus</i> <i>Hymenospermum flavum</i> <i>Sceloparia Brownii</i> <i>Tristania conferta</i> <i>Frenella columellaris</i> " <i>rhomboidea</i> <i>Ptilotus exaltatus</i> <i>Tecoma australis</i> <i>Toxicophloeia Thunbergii</i> <i>Sterculia acerifolia</i> <i>Heptapleurum venulosum</i> <i>Araucaria Cunninghamii</i> <i>Cyathea medullaris</i> <i>Furcraea longeva</i> <i>Panax elegans</i> <i>Casuarina torulosa</i> <i>Cordyline superbiana</i> <i>Dammara australis</i> <i>Deeringia celosioides</i> <i>Pittosporum Colensoi</i> " <i>Tobira</i> " <i>nigricans</i> " <i>bicolor</i> " <i>undulatum</i> " <i>rhombifolium</i> " <i>rubiginosum</i> " <i>crassifolium</i> " <i>sp.</i> <i>Eucalyptus</i> in 88 species. <i>Acacia</i> in 10 species.
From Botanic Gardens British Guiana.	
Sugar Cane, No. 102 <i>Archontophoenix Alexandrae</i> . <i>Dolichos lablab</i> <i>Passiflora Jenmani</i> Yam. "Afa." " <i>Lisbon.</i> " <i>Buck.</i> " <i>Grenada.</i> " <i>China.</i> " <i>Bull Cod.</i> <i>Caryocar nuciferum</i> <i>Victoria regia</i> <i>Ficus Benjaminiana</i> <i>Didymochloa lunulata</i> <i>Pellaea hastata</i> <i>Polypodium lingua</i> <i>Strobilanthes Dyerianus</i>	
From Botanic Gardens, Jamaica.	
<i>Lemonia spectabilis</i> <i>Schomburgkia</i> <i>Brassia</i> <i>Phaius grandifolius</i> <i>Nelumbium luteum</i> <i>Spondias lutea</i>	
From Botanic Gardens, Grenada.	
<i>Plumieria alba</i> <i>Entada polystachya</i> Roses various kinds <i>Tacca filamentosa</i> <i>Sarcocephalus esculentus</i> <i>Stephanotis floribunda</i> <i>Sobralia macrantha</i> <i>Stevensonia grandifolia</i> <i>Spondias purpurea</i> <i>Ornithidium coccineum</i> <i>Hydriastele Wendlandia</i> <i>Adansonia digitata</i>	
From Botanic Gardens, St. Vincent.	
<i>Tectona grandis</i>	
From Botanic Gardens, Adelaide.	
<i>Grevillea chrysodendron</i> " <i>Hilleana</i> " <i>robusta</i> <i>Ficus (australis) rubiginosa</i> " <i>macrophyllus</i>	From Botanic Gardens, Victoria.
	<i>Acacia crassiuscula</i> " <i>juniperina</i> " <i>decurrens</i> " <i>pycnantha</i> " <i>farinosa</i> " <i>cyanophylla</i> " <i>salicina</i> " <i>longifolia</i> var. <i>sophora</i> " <i>pendula</i> " <i>saligna</i> <i>Eucalyptus ficifolia</i> " <i>macrandra</i> " <i>longifolia</i> " <i>platypus</i> " <i>punctata</i> " <i>calophylla</i> <i>Kennedya rubicunda</i> " <i>prostrata</i> <i>Hakea elliptica</i> " <i>acicularis</i> <i>Pittosporum tenuifolium</i> " <i>undulatum</i> " <i>rhombifolium</i> " <i>phillyraeoides</i> " <i>crassifolium</i> <i>Casuarina quadrivalvis</i> " <i>distyla</i> <i>Goodia medicaginea</i> " <i>lotifolia</i> <i>Swainsonia galigifolia</i> var. <i>alba</i> " <i>galegifolia</i>

APPENDIX II.—Continued.

NAMES.	NAMES.
From Botanic Gardens, Victoria.—Con.	Botanic Gardens, St. Petersburg.—Con.
<p>Callistemon phœniceus " rigidus Angophora subvelutina " lanceolata Anigozanthus rufa Anigozanthus flavida Leucopogon lanceolatus Baloghia lucida Coprosma Baueriana Sophora tetraptera Sollya heterophylla Viminaria denudata Boronia megastigma Oxylobium callistachys Carumbium populifolium Cassia phyllodinea Morinda jasminoides Geitonoplesium cynosum Veronica Hulkeana Notelœa microcarpa Hymenoporum flavum Bassica cinerea Angophora intermedia Melicope ternata Lomatia fraxinifolia Tecoma australis Indigofera australis Hardenbergia monophylla alba Eutaxia empetrifolia Hibiscus heterophyllus Eustrephus latifolius Astroloma conostephoides Doryanthes Palmeri Leptospermum scoparium Brachysema subcordatus Cyanthus puniceus Grevillea robusta Billardiera scandens Entelea arborescens</p>	<p>Eleagnus umbellatus Rhaeo discolor Dianthus pallens Vicia grandiflora Allium kartaviense Lilium szowitzianum Glycyrriza glandulifera Vriesia speciosa Calophaca vulgarica Dianthus pinifolius Phillyrea Medwedewi Rhododendron caucasicum Hyacinthus candicans Nicia serratifolia Brexia madagascariensis Crinum Moorei</p>
From Botanic Gardens, St. Petersburg.	From the Botanic Gardens, Mauritius.
<p>Chamacrops humilis, var tomentosa Cocos Gaertneri Erysimum Andrzejcoskianum Alhagi camelorum Veratrum album fl. viridibus Briza maxima Dictamnus fraxinella Fritillaria pallidiflora Stipa capillata Rubus nutkanus Lapeyreusia cruenta Allium coeruleum Tasione Tankae Veratrum nigrum Aegilops ovata Allium Moly Colutea cruenta Lathyrus Hallersteinii Achillea sericea Gypsophila paniculata Hoplophytum coeleste Glycyrrhiza echinata Statice caspida Lophospermum erubescens Aristolochia ornithocephala Sesaueria calycotricha Callicarpa japonica Diplarrhena latifolia Parrotia persica Delphinium puniceus Teedia lucida Eragrostis abyssinica Stephanis canariensis Stephanophysum brevifolium Dalechampia Roeziana var rosea</p>	<p>Corypha elata Licuala horrida Hyophorbe Verschaffeltii Acanthophoenix crinita Hyophorbe amaricaulis</p>
	From Botanic Gardens, Bagalore.
	<p>Hibiscus panduraefornis Solanium indicum var. Argyrea sp. Acacia intsia Sterculia villosa Barleria sp. Withania somnifera</p>
	From Botanic Gardens, Natal.
	<p>Tephrosia elongata " macropoda Solanium duplo-sinuatum Vigna luteola Aspalathus spinosus Streptocarpus sp. Crotonia globifera Tulbaghia acutiloba, var. major Topubia Dregcana Zanthoxylon capensis Oncoba Kraussiana Electronia spinosa Momordica involucrata Littonia modesta Jatropha sp. Scilla rigidifolia, var. nervosa Gomphocarpus sp. Vitis humilis Antholyza caffra Calpurnia lasiogyne Agapanthus umbellatus var. alba Kniphofia modesta Dais cotinifolius</p>
	From Botanic Gardens, Brisbane.
	<p>Livistona australis Randia chartacea Podocarpus elata Mollinedia Huegeliana Ficus Walkinsiana Alpinia coerulea Acrorynchia laevis v. leucocarpa Drinys dipetala Paspalum Galmarræ Bursera australica Atriplex nummularia " vesicaria Eleocarpus obovatus</p>

APPENDIX II.—Continued.

NAMES.	NAMES.
From Botanic Gardens, Brisbane.—Con.	From Agri-Horticultural Society, Madras.—Continued.
<p>Cryptocarya glaucescens " patentinervis Cordylone terminalis Kibara macrophylla Bauhinia alba " purpurea " Hookeri Eucalyptus haemastoma " corymbosa " Balleyana Ficus Cunninghamii " macrophylla Lagerstroemia indica " Flos-Reginae Schotia latifolia " speciosa Sterculia accrifolia Terminalia arjuna Trachycarpus excelsa Raphiolepis indica Hibiscus tiliaceus Tecoma stans Poinciana regia Pseudosuga Douglassii Stenocarpus sinuatus Thuja pendula Juniperus Bermudiana Panax elegans Tectona grandis Phaseolus caracalla Taxodium distichum Sabal Blackburniana Dracaena draco Antigonon leptopus Cocos plumosa Acacia Farnesiana Cassia mimosoides Excaecaria sebifera Dombeya mollis Haematoxylon campeachianum Buckinghamia celsissima Gleditsia triacanthos Lafoensia puniceaefolia Grevillea robusta Barklya syringifolia Aristolochia elegans Cassia pistaciaefolia Duranta Plumieri Bixa orellana Datura cornigera Brunfelsia latifolia Diplothemium maritimum Eucalyptus Staigeriana Ochna atropurpurea Myrospermum Perceirae Albizia odoratissima Macadamia ternifolia</p>	<p>Albizia amara Bombax malabaricum Hiptage madalelota Santalum album Hibiscus collinus Gwofia rouleriformis Butea frondosa Cassia marginata Sapindus emarginatus Albizia moluccana Erythrina indica Tristellatia australaica Colubrina asiatica Acacia soondra Mimusops Elengi Caesalpinia sappan Cassia florida " fistula Sterculia foetida Adenantha pavonina Thespesia populnia Prosopis spaciopera</p>
From Botanic Gardens, Hong Kong.	From Public Gardens, Nagpur.
<p>Phoenix acaulis Spathodea cauda-felinae Rauwolfia chinensis Alpinia nutans</p>	<p>Zea Mays Adenantha pavonina Adansonia digitata</p>
From Agri-Horticultural Society, Madras.	From Botanic Gardens, Sibpur.
<p>Calophyllum inophyllum Pterocarpus marsupium Barleria prionitis Hibiscus vitifolius Heterophragma adenophyllum Phanix sylvestris</p>	<p>Bentinckia nicobarica</p>
	From H. E. Aristakes Azarian, Constantinople.
	<p>Endotropis caudata Codonopsis lanceolata Caryopteris mastachanthus Gentiana scabra, var. Buergeri Cimicifuga simplex, var. ramosa Ophelia diluta Clematis patens " japonica " apifolia Epilobium angustifolium Anemonopsis macrophylla Aconitum uncinatum, var. japonicum Iris laevigata, var. Kaempferi " sibirica var. orientalis Valeriana officinalis Scabiosa japonica Vicia cracca, var japonica Clerodendron divaricatum Corydalis Wilfordi Lilium avenaceum</p>
	From M. Buysman, Esq., Holland.
	<p>Trichosanthes cucumeroides Antholyza caffra Milletia caffra Libertia formosa Gardenia Rothmanni Gladiolus auranticus Dais cotinifolius Dombeya natalensis Kunzea pomifera Nesaea floribunda Oncoba Kraussiana</p>

APPENDIX II.—Continued.

NAMES.	NAMES.
From Lorenzo Y. Yates, Esq., California.	From J. O'Brien, Esq.—Continued.
Echinocactus Engelmanni " cylindricus Opuntia basilaris Agave deserta Ceonothus spinosus	Cypripedium exul Oncidium praetextum Lycaste trifoliata, Lehmanii Eriopsis rutidobulbon Sarcopodium Lobbii
From T. Rodgers, Esq., Manchester.	From Messrs. Herb & Wulle, Naples.
Erythrina sp. Honolulu Antigonon sp. Honolulu	Collection of Flower Seeds " Vegetable Seeds
From J. O'Brien, Esq., Harrow- on-the-Hill, London.	From U.S. National Herbarium.
Hexacum macranthum Vanda tricolor " kimbaliiana " amesiana Laelia grandis " tenebrosa " purpurata " sp. " cinnabarina Dendrobium nobile " Wardianum " densiflorum " Findlayanum Maxillaria Sanderiana Cattleya Mossicae matutina " Mendelii " Loddigesii " elongata " Leopoldii " guttata Prinzii Dendrobium thyrsiflorum " linguaforme " tetragonum Oncidium tigrinum Odontoglossum citrosimum Trichopilia tortilis Zygopetalum crinitum Acineta sp. Chysis bractescens " aurea	Rumex hymenosepalus
	From Canon Trotter, Trinidad.
	Araucaria sp.
	From Mr. Justice Nathan, Trinidad.
	Zygopetalum Mackayi Dendrobium Dalhousianum Cymbidium Lowianum Epidendrum verrucosum " sp. Oncidium orthostates " Cavendishianum Dendrobium tortile " Jamesianum " crystallinum Maxillaria sp. Coelia trioptera
	From Mr. Lewis, Trinidad.
	Nephrolepis sp.
	From Mr. Abel, Trinidad.
	Ravenala madagascariensis

APPENDIX III.

METEOROLOGICAL RESULTS FOR 1895 TAKEN AT THE ROYAL BOTANIC GARDENS.

MONTH.	BAROMETER.		THERMOMETERS.								Humidity.	Tension of Aqueous Vapour.	Rainfall.	Dew Point, 7 A.M.	Dew Point, 3 P.M.
	REDUCED READINGS.		DRY & WET BULBS.				Maximum.	Minimum.	Mean Temperature, Blackened Bulb in Vacuo.	Mean Temperature, Thermometer on Grass.					
	7 A.M.	3 P.M.	7 A.M.		3 P.M.										
	Bar.	Bar.	D.	W.	D.	W.									
	In.	In.	°	°	°	°	°	°	°	°	°		In.	°	°
January	29.985	29.946	70.2	69.2	81.7	74.6	85.0	68.0	158.3	66.5	80.	.708	2.52	68.43	69.84
February	30.007	29.958	68.8	67.5	82.7	74.6	85.8	66.0	158.3	64.9	75.	.673	1.33	66.49	68.78
March	29.994	29.945	70.4	69.0	83.5	74.2	86.9	67.3	159.0	65.4	76.	.684	2.27	67.93	67.97
April	30.011	29.948	73.8	71.2	86.8	75.5	89.5	69.1	164.0	66.9	68.	.696	2.52	69.31	68.27
May	30.019	29.953	75.3	72.5	86.3	75.7	90.3	70.4	159.7	68.9	70.	.720	2.11	70.49	68.81
June	30.060	30.007	74.3	73.1	84.7	75.8	88.6	70.3	159.3	69.1	76.	.759	5.00	72.13	70.02
July	30.047	29.993	74.0	72.2	84.6	76.4	88.7	69.7	159.7	68.5	75.	.746	2.57	70.89	70.07
August	29.969	29.913	74.4	73.1	83.7	77.5	89.3	70.6	162.7	69.7	76.	.798	4.86	72.16	73.41
September	29.964	29.914	76.3	73.7	84.9	77.3	88.7	72.0	159.5	70.8	76.	.785	5.69	71.86	72.36
October	29.942	29.876	75.1	73.4	84.2	77.8	88.9	71.0	160.3	70.0	79.	.798	10.89	72.18	73.58
November	29.940	29.882	74.1	72.9	82.1	76.4	86.4	71.1	154.1	70.6	88.	.798	15.15	72.03	72.69
December	29.932	29.890	72.2	71.2	83.0	76.3	86.5	69.4	155.8	68.4	81.	.759	7.32	70.40	71.82
	29.989	29.935	73.2	71.5	84.01	76.0	87.8	69.5	158.8	68.3	76.	.743	5.18	70.35	70.62
Mean daily height of Barometer	29.962 inches.		Mean Annual Temperature				73.6				Total Rainfall		62.23 inches.		

Latitude 10.39 N. Longitude 16.30 W. Height above Sea-level 130 feet.

APPENDIX III.

ROYAL BOTANIC GARDENS, ANNUAL RAINFALL, 1862 TO 1895, INCLUSIVE.

YEAR.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.	Total Rainfall in each year in Inches.	Decades.
	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.		
1862	0.00	.66	.77	.25	1.41	8.47	10.36	9.57	11.97	6.60	10.06	3.03	63.15	In the decade 6 years above and 4 years below 30 years average.
1863	1.54	2.71	1.45	.85	1.26	9.12	10.12	10.53	12.11	6.24	4.30	6.57	66.80	
1864	2.51	.53	.36	.04	8.15	4.96	7.17	12.06	8.04	6.53	5.94	6.61	62.90	
1865	2.62	3.20	1.07	7.98	3.22	5.64	10.35	14.83	7.32	14.62	4.81	9.62	85.28	
1866	2.24	3.91	1.44	1.09	1.45	6.59	7.83	12.34	5.87	10.11	8.17	6.82	67.86	
1867	1.31	6.36	.83	1.32	2.33	5.30	12.20	15.21	10.45	7.87	.67	2.71	66.56	
1868	2.06	.82	3.20	.64	4.17	7.78	11.35	6.73	5.46	4.66	8.31	1.03	56.21	
1869	.08	.93	.74	.41	.69	5.52	10.17	8.74	8.86	5.15	6.30	5.87	53.46	
1870	2.61	.56	1.46	1.51	4.65	8.81	11.91	9.00	10.63	3.98	5.94	8.29	69.35	
1871	6.62	1.40	2.89	.92	3.97	8.84	11.73	12.97	7.87	4.37	10.73	3.27	75.58	
1872	1.45	.07	.74	.30	3.14	7.09	5.45	10.82	3.07	4.80	9.89	3.04	49.95	
1873	1.78	1.08	1.98	.53	0.00	4.31	5.04	8.37	5.80	10.34	3.48	1.31	44.02	
1874	3.47	1.96	3.67	5.16	2.51	12.28	12.28	11.20	9.38	6.42	3.66	4.29	76.28	
1875	3.39	.91	.56	.42	2.61	4.15	12.62	7.22	11.95	10.85	3.74	2.48	60.90	
1876	3.26	1.03	1.78	1.67	6.65	11.17	12.23	15.18	12.03	7.04	5.95	3.96	81.95	
1877	2.14	0.00	7.46	3.38	3.19	8.43	8.35	12.94	6.39	6.68	7.66	5.43	72.10	
1878	3.44	.70	0.00	3.22	4.99	5.78	5.42	8.88	11.15	5.89	8.72	3.05	61.24	
1879	1.52	2.76	4.56	3.03	3.08	14.92	6.86	10.35	6.15	3.54	4.28	4.38	65.43	
1880	11.72	6.53	.67	2.32	3.90	7.83	6.30	17.39	7.47	5.74	10.51	1.96	82.34	
1881	.57	.65	.23	1.60	4.66	11.05	7.82	10.90	10.59	3.36	12.06	2.23	65.72	
1882	1.33	2.38	.73	1.57	3.74	6.33	5.93	8.40	4.93	5.86	10.29	1.50	52.99	
1883	1.56	.71	.26	3.37	5.89	10.91	13.66	10.26	5.53	3.99	6.06	8.30	70.50	
1884	3.43	2.50	4.40	1.51	2.91	6.84	5.71	8.70	5.08	5.05	5.14	5.66	56.88	
1885	1.30	.89	1.49	.43	5.27	3.44	5.87	4.56	6.08	4.08	5.37	4.44	43.22	
1886	3.32	1.97	3.27	3.83	4.49	9.70	17.48	8.15	6.73	12.59	8.54	6.75	86.82	
1887	2.69	1.46	1.67	1.08	3.93	7.40	5.51	9.93	5.07	5.84	7.60	11.86	64.09	
1888	8.37	1.79	2.41	2.28	3.46	11.92	6.89	7.02	5.53	5.06	7.76	2.95	65.44	
1889	0.94	0.85	4.16	1.05	6.34	11.66	12.14	11.73	3.76	6.30	7.33	7.48	73.79	
1890	7.76	0.51	2.09	7.62	5.14	9.68	12.89	11.65	3.37	10.98	5.93	5.28	82.90	
1891	3.17	0.92	0.03	1.44	2.54	5.54	11.88	4.26	7.44	5.77	6.66	4.09	53.74	
Avg. Monthly Rainfall for 30 years, 1862-'91	2.94	1.69	1.87	2.03	3.65	8.04	9.45	10.32	7.53	6.67	6.36	4.81	*65.91	
1892	1.93	2.19	1.85	7.59	11.55	16.26	15.55	9.21	3.57	11.49	5.40	4.69	91.14	
1893	3.43	1.85	0.19	3.61	11.35	10.19	13.28	16.32	11.73	5.47	7.84	7.23	92.49	
1894	2.22	2.86	3.12	1.22	2.69	3.26	4.58	12.06	5.48	3.93	7.28	3.16	82.31	
1895	2.62	1.33	2.27	2.52	2.11	5.00	2.57	4.86	5.69	10.89	15.15	7.82	62.23	

*Average Annual Rainfall for 30 years—1862 to 1891 = 65.91 inches.
 Average last 4 years—1892 to 1895 = 74.54 "

J. H. HART, F.L.S.,
 Superintendent Botanical Department.