ANNUAL REPORT

ON THE

ROYAL BOTANIC GARDENS,

AND THEIR WORK

FOR

1891.

BY

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

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ANNUAL REPORT

ON THE

ROYAL BOTANIC GARDENS, 1891.

I have the honour to submit my Fifth Annual Report on the Botanical Department of this Island. The period under review is from January to December, 1891.

2. According to Circular Instructions received, the Report for this year is restricted to a brief account of work done.

3. No change has occurred in the staff during the year. The Superintendent was absent thirty-eight days owing to ill-health, and during the month of January he was absent on a few days visit to Grenada to confer with Mr. Morris on Botanical matters in general of the West Indies.

4. The usual correspondence on meteorological subjects has been duly maintained, and the Rainfall Returns regularly published. The Annual Return for the Island will be found appended hereto.

5. The Rainfall Return for the past thirty years has been now completed and has been divided into decades. The first decade shews a rainfall giving a total of 7·12 inches more rain than the second; and the third shows another decrease of 9·56 inches on the second and no less than a decrease of 16·68 inches on the first decade.

6. The average Rainfall for the ten years from—

1862 to 1871	...	...	... 66·7 inches.
1872 to 1881	...	...	... 65·9 ,,
1882 to 1891	...	...	... 65·0 ,,

shews a rainfall decreasing at a seriously rapid rate.

This is a subject which is of the utmost importance to those engaged in consideration of Forestry subjects and the Water Supply of Port-of-Spain.

7. Trinidad rainfall is not so much affected as is generally supposed by its contiguity to the Mainland of South America, for it can be most conclusively shewn that the greater portion of our rainfall follows the course of the trade winds, which invariably blow in a direction which is *towards* and not *from* the Continent of South America. The rains, however, which are brought by southerly winds undoubtedly derive their moisture from the mountains of the Mainland.

8. Our driest and wettest years during the period under review have been as follows:—

Dry Years.			Wet Years.		
1885	...	... 43·22 inches.	1886	...	... 86·82 inches.
1873	...	... 44·02 ,,	1865	...	... 85·29 ,,
1872	...	... 49·95 ,,	1890	...	... 82·90 ,,
1882	...	... 52·99 ,,	1880	...	... 82·34 ,,
1869	...	... 53·46 ,,	1876	...	... 81·95 ,,
1891	...	... 53·74 ,,	1874	...	... 76·28 ,,

9. A computation of the death-rate shows that the mortality of a tropical town does not follow the idea generally entertained by residents in a temperate climate. In fact it can be proved beyond dispute that the death-rate from Zymotic diseases is generally much higher in London than it is in Trinidad.

The bugbear of fever and malaria which so often deters visitors from our shores, can be shewn from statistics practically to have no existence, and the fact is being slowly established that the West Indies may be regarded as a safe resort from the rigours of an American or European winter.

10. The material in the Departmental Herbarium still accumulates faster than it can be assorted; the work in the economic department of our Establishment taking up the greater part of our time at our disposal.

11. The work of correspondence with similar establishments abroad has been regularly continued, and the number of missives despatched during 1891 was 1,701 or 37 over the corresponding period for 1890.

12. Contributions to the pages of the *Agricultural Record* have been furnished at intervals during the year to the number of 111 pages of letter press. These contributions have in a measure taken the place of the Botanical *Bulletin* formerly issued by the Department.

13. A long Report on the Forests of the Island, asked for by the Secretary of State, was prepared by command of the Executive. It consists of 46 pages foolscap.

A work on "Cacao" was also completed for the press. It is an illustrated work of some 88 pages, demy octavo, and will shortly be issued.

14. The work of decorating the residence of Her Majesty's representative has been carried out as usual. The demand for decorative plants for public assemblies has occasioned a large expenditure of labour. It is intended in future to record the value of the services under this head, which have not hitherto been kept separate from general work.

15. In our visitors' book are registered the names of 786 ladies and gentlemen who made more or less demands upon our time. This number is an increase of 82, compared with the number registered in 1890.

16. Rules and Regulations having the force of law are much required for the purpose of regulating the time of opening and closing of the Gardens as a place of public resort.

Among the visitors of the year was Professor Warming of Copenhagen, a well-known and enthusiastic Botanist.

17. In the Nurseries work has been active during the year. A record of Plants sold and distributed free, shows the usefulness of this section beyond dispute. (See para. 21–24.)

18. The Nursery Catalogue is not yet out of the printer's hands.

19. The number and kind of plants introduced during the year are given in tables at the end of this Report.

20. Persons requiring plants should, on all occasions, apply at the office and not to the workmen in the nurseries; much disappointment may thereby be avoided, as it has been known to happen that persons have complained of the absence of plants when a full stock has been on hand for distribution.

21. The total number of plants distributed during the year was 49,909, by sale, free grants, and exchange.

The number of packages of seeds distributed was 458—these were principally to institutions abroad.

Eight thousand two hundred and seventy-four (8274) Nutmeg seeds were sold to Jamaica, Tobago and Trinidad cultivators—the bulk going to the first-named Island.

22. The sum of £316 13 5½ was realized from plant sales for the year.

23. Of the plants distributed 40,626 were taken by local planters.

24. Seeds were received from various institutions abroad to the number of 502 packages. And plants have been received to the number of 314 from Kew and other Botanic Gardens.

Due acknowledgments are contained in the attached List which forms a record of success or failure, and thus writes the local history of an introduction as well as informing our correspondents of the varying success of their contributions.

25. A larger demand arose for Coffee plants than could be supplied, owing to want of space for cultivation.

26. Several orchids, new to our collection, were obtained during the year by purchase, and numerous others by exchange.

The custom prevails of shipping many of our best native orchids for commercial purposes, and this, I fear, will soon exterminate several of our best varieties.

27. The usual annual contributions to the Library have been secured by exchange and purchase, and we here take advantage to thank our correspondents for their exchanges which are at all times highly appreciated.

28. Free exchange of publications with Botanical Institutions is now a recognized "order of the day" in all countries, and it must be said that nothing is so likely to tend to the welfare of a country as a free distribution of anything giving an account of its natural resources and industries.

29. A considerable sum was expended during the year in the maintenance of Garden labels, a work which is, in every Public Garden, a source of constant care.

30. Many plants were stolen from the beds in the front Garden. In fact it is quite useless to attempt to plant anything of any special value in the more public parts of the Institution.

31. The maintenance of a large number of parasitic plants upon the Garden trees is considered by all visitors—having a botanical turn of mind—to be one of the chief beauties of the Garden, they are therefore encouraged on all the common trees, but are of course carefully removed from the more valuable. Residents as a rule do not appreciate these features, and are apt to consider that a want of care exists owing to their presence.

32. The Palmetum has received several additions during the year, one or two plants which expended their strength in the production of fruit were removed, and their place has been taken by young plants of other kinds.

33. In the Economic Section the chief feature has been the large demand for Coffee and Orange plants. Sisal Hemp is in no demand, notwithstanding all that has been written about it, and many hundreds of plants are still on hand. The other fibre plants are receiving all the needed attention, and time is devoted to the maintenance of a full supply of seedlings as may be demanded by the public.

34. A close scrutiny is given to all Botanical publications with the view of securing plants of economic value to residents in the Colony.

35. A consignment of Mangosteen fruits was successfully sent to England and presented to Her Majesty the Queen by His Excellency Sir F. Napier Broome, K.C.M.G. They are believed to be the first seen on the Royal table.

36. A steady demand for Nutmeg plants and seeds has been maintained throughout the year, and the number of planters of this spice is evidently steadily increasing.

37. The Kitchen Garden at the desire of His Excellency the Governor has been slightly enlarged and permanent improvements have been effected. The walks have been macadamized, and the drains and water service much improved. The usual run of vegetables suitable to a tropical climate have been cultivated, and in December we had in the Garden the following crops :—Cabbage, Lettuce, Garden Eggs *(Solanum melongena)*, Jerusalem Artichoke, Tomatoes, French Beans, Sugar Beans, Lima Beans, Capsicums, Cho-Cho or Christophine, *(Sechium edule)*, Cucumbers, Pigeon Peas, *(Cajanus indicus)*, Spinach, Water-cress, Turnips, Carrots, Radishes, Shallots, Parsley, Cassava, Tannias, Asparagus and Beet Root.

We find it impossible to grow with any degree of success Potatoes, Onions, and English Peas. Celery is only useful for flavouring purposes as a rule. French Beans will not come in wet weather. Cucumbers are much affected by the larvæ of a certain moth. Turnips are very poor. Beet Root and Carrots come well in dry weather. The ox-heart Cabbage gives good solid heads during the spring months. Radishes are excellent all the year round.

38. The water-snail spoken of last year in our Natural History notes, has again been very destructive to our water plants in the Garden Fountains.

39. On the Section of Forestry and Reboisement we have little to record, as our Report on that special subject, contains all the information I have been able to gather.*

40. A Table of Vegetable Products imported and exported from the Island is appended to this Report in a concise form, and will be of great interest to the planting community, the figures shewing the increase and decrease of special products, and deserve a close scrutiny from those interested in all sections of our productive industry.

41. Entomological determinations are appended as usual. The importance of Entomology in a course of agricultural teaching has been most unhappily demonstrated by the discovery of a small beetle in the sugar cane fields, which has been doing immense damage on many estates. This beetle has been determined as *Xyleborus perforans*, Wall, and is said to have been first known from Madeira where it was found destroyed the bungs of nine casks. It is terribly destructive to the cane plant and will make the yield much less on the many estates attacked.

The occurrence of an extremely wet season and an extremely dry one in close succession has doubtless contributed to the spread of the insect.

There are perhaps other causes which tend to increase the spread of the disease, not the least prominent in which is the "constitutional weakness" which is engendered by propagating the canes exclusively upon land many years in succession, and from the same plants year after year and season after season.

In my Report on the subject (published *Agricultural Record*) I have shewn that seedling canes are decidedly more vigorous than canes from cuttings, and that it may be found practicable to select varieties which are good sugar producers, and at the same time practically disease and insect proof.

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

* Since issued.

APPENDIX I.

PLANT AND SEED DISTRIBUTION AND EXCHANGE.

Plants and Seeds were distributed to the following Correspondents during the year :—

ROYAL GARDENS	Kew.
BOTANIC GARDENS	Calcutta.
,, ,,	Ceylon.
,, ,,	Fiji.
,, ,,	Java.
,, ,,	St. Petersburgh.
,, ,,	Singapore.
,, ,,	Gold Coast.
,, ,,	Hong Kong.
,, ,,	Mauritius.
,, ,,	Natal.
,, ,,	Saharanpur.
,, ,,	British Guiana.
,, ,,	Oxford.
,, ,,	South Australia.
,, ,,	New Zealand.
,, ,,	Queensland.
,, ,,	Sydney.
,, ,,	Tasmania.
,, ,,	Bangalore.
,, ,,	Bombay.
,, ,,	Lucknow.
,, ,,	Melbourne.
,, ,,	Berlin.
,, ,,	St. Kitts.
,, ,,	Jamaica.
,, ,,	Dominica.
,, ,,	St. Vincent.
,, ,,	Washington, U.S.A.
,, ,,	Tobago.
,, ,,	Berlin.
,, ,,	Martinique.
SECRETARY AGRI-HORTICULTURAL SOCIETY	Madras.
SAYJAR NIVAS GARDENS	India, Oodeypore.
SMITHSONIAN INSTITUTE	Washington.
MR. REEVES	St. Lucia.
OFFICERS RUSSIAN FRIGATE "MININE"	...
SECRETARY AGRI-HORTICULTURAL SOCIETY	Brisbane, Australia.
DR. L. D. YATES	California, U.S.A.
A. J. A. BRUCE, ESQ.	Manchester, England.
REV. BASSET KEY	Jamaica.
G. H. JAMIESON, ESQ.	Punjaub, India.
T. L. MEAD, ESQ.	Florida, U.S.A.
PROF. WARMING	Copenhagen, Denmark.
MESSRS. PARKE, DAVIS & CO.	Michigan, U.S.A.
EDITOR "FLORIDA AGRICULTURIST"	U.S.A.
J. O'BRIEN, ESQ.	Middlesex, England.
L'HORTICULTURE INTERNATIONALE	Brussels.
MRS. PEEL	Yorkshire, England.
COL. COOPER	England.
THE COUNTESS OF BECTIVE	England.
SIR WILLIAM PARKER, BART.	England.
R. CURNOW, ESQ., CLAPTON NURSERY	London.
MESSRS. LOW & CO.	London, England.
MRS. LLOYD WYNNE	Wales.
J. J. BOWREY, ESQ.	Jamaica.
WM. JAMES, ESQ.	England.
COLONEL H. T. STOUGHTON	,,
E. J. WAINWRIGHT, ESQ.	(for Madeira).
MESSRS. GORDON, GRANT & CO.	(for Madeira).
ALBRECHT SEITZ, ESQ.	Tobago.
MR. SANGUINETTI	Jamaica.
H. HAMILTON, ESQ.	Montserrat, W.I.
THE EDITOR "INDIAN TEXTILE JOURNAL"	...
H. R. H. THE PRINCE OF WALES	England.
MR. ALLAN BELFIELD	Bristol, England.
M. H. HERBERT, ESQ.	England.
ALFRED VIDEAN, ESQ.	Bordeaux.
AUGUSTUS BRIGGS, ESQ.	Barbados.

APPENDIX II.

Plants and Seeds were received under the names given from Correspondents according to the following List, which forms annually a permanent record of introductions made, and is also an acknowledgment to our Correspondents in the various Institutions which favour us with exchanges, and present similar returns :—

Name.	A.	B.
From Royal Gardens, Kew.		
Corypha Gebanga ...	S	F
Eucalyptus corymbosa	S	F
,, citriodora	S	F
Stocksea Brahinca...	S	F
Cassia alata	S	F
Cassia sp.	S	F
Adiantum Mariesii...	P	*
Aphelandra Chamissoniana	P	F
Arauja graveolens...	P	*
Antiaris toxicaria ...	P	*
Bauhinia Galpini	P	*
Brehmia spinosa	P	F
Calamus seebangulatus	P	*
Chrysophyllum majalismontana	P	*
Croton Laingii	P	F
Combretum sundaicum	P	*
Dammara alba	P	*
Dioon spinulosum	P	*
Diospyros sp. $\frac{303}{1887}$ Paris B. G.	P	*
Dracena pendula	P	*
Eugenia lanceolata	P	*
Eupomatia Bennettii	P	*
Hoya Cummingiana	P	*
Ilex sp. Brazil (used as tea)	P	*
Ixora barbata	P	*
Kola sp. (Christy) ...	P	*
Mikania speciosa	P	F
Myroxylon Pereira	P	*
Noronhea emarginata	P	*
Piper officinalis (Cubeba) Hort. Java	P	*
Sideroxylon dulciferum	P	*
Solanum guatemalense	P	F
Sonerila erientalis...	P	F
,, ,, punctata	P	F
Vanilla sp. Singapore	P	*
Unnamed plant $\frac{192}{1885}$ Van Houlte	P	*
Aloe glauscesens	P	F
,, grandidentata	P	*
,, Hanburyii	P	*
,, latifolia	P	*
,, striata	P	*
,, sp. Galpin, 1890	P	F
Aristea Eckloni	P	*
Asparagus lucidus...	P	*
Anigozanthus pulcherrima	P	F
Beschornerica superba	P	*
Cereus Marteni	P	*
Ceropegia nobilis	P	F
Coburgia luteo-viride	P	*
Caprosma lucida variegata	P	*
Crinum Hildebrandtii	P	*
Crassula recurcea? ...	P	F
Cyrtanthus hybridus	P	F
,, lutescens	P	F
,, Mackeni	P	F
Dianella cœrulea	P	*
,, Tasmaniea	P	F
Dasylirion Wheeleri	P	F
Diplarrhœna Moreæ	P	F
Encephalartos Barteri	P	F
Eurycles Cunninghamii	P	F
Euphorbia biglandulosa	P	F
Ceropegia Sandersonii	P	*
Furcrœa Bedinghausii	P	F
,, Rœzelii	P	*
Gesnera cardinalis...	P	*
Gloriosa Plantii	P	*
,, superba	P	F
Gloxinia tubiflora ...	P	F
Hedychium glaucum	P	F

Name.	A.	B.
From Royal Gardens, Kew.—Continued.		
Hymenocallis undulata	P	*
Kœmpferia atro-virens	P	*
,, Galanga	P	*
,, Gilbertii	P	*
Libertia tricolor	P	F
Nerine sarniensis	P	*
,, curvifolia	P	F
Pitcairnia maidifolia	P	F
Phœnix canariensis	P	*
Rochea falcata (Crassula)	P	F
Reinwardtia tetragyna	P	*
Stilla longibracteata	P	*
Tacca pinnatifida	P	F
Urceolina aurea	P	*
,, miniata	P	*
Yucca sp. Sargent...	P	F
Famia Loddigesii	P	F
Zephyranthes carinata	P	*
Rohdea japonica variegata	P	*
Sterculia urens	S	*
Brassica juncea	S	F
Acanthosicyos horrida	S	F
Podocarpus elatus ...	S	F
From Botanic Gardens, Ceylon.		
Cassia alata	S	F
,, obtusa	S	F
Clerodendron Fallax	S	*
Sponia nil	S	F
Begonia malabaricum	S	F
Sesbania Ægyptiaca	S	F
Hibiscus vitifolia	S	*
Bauhinia acuminata	S	F
,, sumatrana	S	F
Crotolaria laburnifolia	S	F
Clitoria Bertariana	S	*
Desmodium polycarpium	S	*
Pavetta indica	S	*
Oncosperma facienlata	S	F
Garcinia Xanthochymu	S	F
Hernandia merenhoutiana	S	F
Pericopsis Mooniana	S	F
Cassia alata	S	F
Cananga odorata	S	F
Thunbergia laurifolia	S	*
Cassia Fistula	S	F
Medinilla speciosa...	S	F
Indigofera arborea...	S	F
Zanthoxylon Rhetsa	S	F
Calpurnia aurea	S	F
Lagerstrœmia hexaptera	S	F
Ocymum sanctum ...	S	F
Calpurnia sylvatica	S	F
Thunbergia coccinea	S	*
Ipomœa polyantha	S	F
Adenanthera microsperma	S	*
Peltophorum dasyrhachis	S	*
Clerodendron nutans	S	F
Lagerstrœmia Flos-reginæ	S	F
Cassia obtusa	S	F
Pterocarpus indicus	S	*
Sesamum occidentale	S	F
Crossandra undulæfolia	S	F
Woodfordia floribunda	S	F
Parkia Roxburghii	S	*
Barberia Priorites...	S	F
Dicellostyles axillaris	S	F
Radensara aromatica	S	F

A.—P. Plants. S. Seeds B.—* Succeeded. F. Failed.

NOTE.—It should be noted that the names attached by our correspondents are often for various reasons hard to decipher.

APPENDIX II.—Continued.

Name.	A.	B.
From Botanic Gardens, Ceylon.—Continued.		
Erythrina indica	S	F
Calophyllum	S	F
Michelia Champaca	S	F
Amoora Rohituka	S	*
Berrya ammonilla	S	*
Mimusops hexandra	S	*
Pistacia lentescens...	S	*
Terminalia belerica	S	F
Pometia eximia	S	F
Mesua ferrea	S	F
From Botanic Gardens, Saharanpur.		
Chinese white Cabbage	S	F
Blumea glomerata	S	*
Amaryllis hybrida...	S	F
Bœhmeria nivea	S	F
Thespesia populnea	S	F
Caryota urens	S	*
Canavallia ensiformis	S	*
Phœnix humilis	S	F
,, sylvestris	S	F
Lagerstrœmia regina	S	F
,, indica	S	F
Calamus nœglliana...	S	*
From Botanic Gardens, Singapore.		
Sinodora sinamensis	S	F
Cinnamomum Iners	S	F
Pandanus odoratissimus	S	*
Calyptroclalyx spicatus	S	F
Canarum emfum	S	*
Fagrea fragrans	S	F
Fibramea tinctoria	S	F
Combretum sundaicum	S	F
Artocarpus echinata	S	*
Licuala longipes	S	F
Bacularia monostachya	S	F
Sindora siamensis	S	F
Sterculia rubiginosa	S	F
Pinanga maculata	S	F
Sterculia scaphigera	S	F
From Botanic Gardens, Bangalore.		
Cipadessa fruticosa	S	F
Crotolaria sp.	S	F
Ipomœa sp.	S	F
Holcus sorghum	S	F
Acacia sp.	S	F
Thephrosia tinctoria	S	F
Ipomœa coccinea	S	F
Cassia aureculata	S	*
Labiatæ (herb)	S	F
Argyrea cuneata	S	*
Withama somnifera	S	F
Dalbergia lanceolaria	S	F
Bassia latifolia	S	F
Schleichera trijuga	S	F
Terminalia arjuna	S	F
Dalbergia lanceolaria	S	F
Terminalia tomentosa	S	*
Buchanania latifolia	S	F
From Botanic Gardens, Bombay.		
Triphrasia trifoliata	S	*
Saraca indica	S	*
Cassia Fistula	S	F
Clitorea ternatea	S	F
Lagerstrœmia flos regina	S	F
Aristolochia elegans	S	F
Ochna squarrosa	S	F
From Botanic Gardens, Bombay.—Continued.		
Pterospermum suberifolium	S	F
Pithecolobium Saman	S	F
Lawsonia inermis	S	F
Derris scandens	S	*
Erythrina indica	S	F
Pterospermum acerifolium	S	*
From Botanic (Horticultural ?) Gardens, Oodeypore.		
Cedrela toona	S	F
Dalbergia sissoo	S	*
Gloriosa superba	S	F
Erythrina indica	S	F
Inga dulcis	S	*
Lawsonia alba	S	F
Stillingia sebifera	S	F
Lagerstrœmia indica alba	S	F
Kigelia pinnata	S	*
Lagerstrœmia flos regina	S	F
,, indica	S	F
Thunbergia grandiflora	S	F
Parkinsonia aculeata	S	F
From Botanic Gardens, Melbourne.		
Acacia armata	S	F
,, dealbata	S	F
,, decurrens	S	F
,, diffusa	S	F
,, farinosa	S	F
,, iteophylla	S	F
,, longifolia	S	F
,, melanoxylon	S	F
,, oxyceduns	S	F
,, pendula	S	F
,, pycnantha	S	F
,, salicina	S	F
,, saligna	S	F
,, suaveolens	S	F
Eucalyptus alpina	S	F
,, amygdalina	S	*
,, annulata	S	F
,, botryoides	S	*
,, calophylla	S	F
,, cornuta	S	*
,, corymbosa	S	F
,, corynocalyx	S	F
,, diversicolor	S	F
,, doratoxylon	S	F
,, globulus	S	F
,, gomphocephala	S	F
,, goniocalyx	S	F
,, grossa	S	F
,, hæmatosma	S	F
,, Lehmannii	S	F
,, leucoxylon	S	F
,, ,, fl. rosa	S	F
,, macronhyncha	S	F
,, maculata	S	*
,, ,, var. citriodora ..	S	F
,, marginata	S	F
,, megacarpa	S	F
,, melliodora	S	F
,, obtusiflora	S	F
,, occidentalis	S	F
,, platypus	S	F
,, ,, var. nutans ...	S	F
,, punctata	S	*
,, rostrata	S	F
,, rudis	S	F
,, saligna	S	F
,, siderophloia	S	F
,, tereticornis	S	F
,, tetragona	S	F
,, viminialis	S	F

A.—P. Plants. S. Seeds. B.—* Succeeded. F. Failed.

APPENDIX II.—Continued.

Name.	A.	B.
From Botanic Gardens, S. Australia.		
Kentia Wendlandiana	S	F
Melaleuca symphyocarpa	S	F
Acacia drepanocarpa	S	F
Uvaria Holtzii	S	F
Sida Holtzii	S	*
Ipomœa grandiflora	S	F
Polyalthea Holtzeana	S	F
Grevillea Chrysodendron	S	F
Capparis umborata	S	F
Agri-Hort. Society, Madras.		
Ægle Marmelos	S	*
Myroxylon Pereira	S	*
Spathodea adenophylla	S	F
Steriospermum chelonioides	S	F
Cassia glauca	S	F
Hibiscus collinus	S	*
Albizzia lebbeck	S	*
Colubrina asiatica	S	F
From Botanic Gardens, Mauritius.		
Furcrœa gigantea	P	*
From Botanic Gardens, Hong Kong.		
Chamærops Fortunei	S	*
From Botanic Gardens, Fiji.		
Furcrœa sp.	P	*
From Botanic Gardens, Jamaica.		
Theobroma Cacao, vars.	S	*
Sechium edule (white)	P	*
Chrysalidocarpus lutescens	S	F
Dypsis madagascariensis	S	*
Stevensonia grandifolia	S	*
Garcinia pictoria	S	F
Cocos australis	S	F
Dypsis pinnatifrons ?	S	*
Diplothemium sp.	S	*
Caryota Cummingii	S	F
Areca glandiformis	S	*
Ricinus communis	S	*
Picræna excelsa	S	*
Juniperus Bermudiana	S	F
Ipomœa sidafolia	S	*
Xanthoxylom clava-herculis	S	F
Sesbania grandiflora	S	F
Melia sempervirens	S	*
Licuala elegans	S	F
Areca Alicisæ	S	*
Dictyosperma alba	S	F
Pinanga Kuhlii	S	F
Licuala elegans	S	F
Diplothemium caudescens	S	F
Tigridia pavonia	S	F
Viburnum villosum	S	F
Diospyros mabola	S	F
From Botanic Gardens, British Guiana.		
Urd or Wash	S	F
Sorghum halapense	S	*
Yam Bean	S	F
Mung	S	F
Mountain Dew Sorghum	S	F
Mote Red	S	F
Mandua	S	F
From Botanic Gardens, British Guiana.—Continued.		
Dolichos Lablab	S	F
Mucuna capitata	S	F
Dolichos sp.	S	F
Chinese Pea	S	F
From Botanic Gardens, Grenada.		
Cola acuminata	S	*
Spondias sp.	S	F
Sarcocephalus esculentus	S	F
Lagerstrœmia regina	P	*
Swietenia mahogani	S	*
Ornithidium coccineum	P	*
Ceratonia siliqua (Malta variety) ...	S	*
,, ,, (Cyprus var.) ...	S	*
From Botanic Garden, St. Vincent.		
Agave sisalana var.	P	*
Hernandia sonora	S	*
From Botanic Gardens, St. Kitts.		
Cassia alata	S	*
Furcrœa cubensis	P	*
Phaseolus vulgaris var.	S	F
From Botanic Gardens, Dominica.		
Yams	P	*
Michelia champaca	S	*
Averrhoa carambola	S	*
From Botanical Station, Tobago.		
Unnamed plants	P	*
From Botanic Garden, Natal.		
Hyphæna natalensis	S	*
Maba natalensis	S	*
Carissa acuminata	S	F
Oxyanthus natalensis	S	F
Canavalia gladiata...	S	F
Turrœa obtusifolia	S	F
Watsonia densiflora alba	S	F
Turrœa heterophylla	S	F
Dracæna latifolia	S	*
Celtis kraussiana	S	*
Tephrosia grandiflora	S	F
Dioscorea sp.	S	F
Acokanthera spectabilis	S	F
Burchellia capensis	S	F
Dissotis princeps	S	F
Vepris lanceolata	S	*
Aberia caffra	S	F
Sphedamnocarpus pruriens	S	F
Ceratotheca triloba	S	F
Dicoma anomala	S	F
Dias cotinifolia	S	*
Littonia modesta	S	F
Anona senegalensis	S	F
Milletha caffra	S	*
Cephalanora palmata	S	F
Mimordica involucrata	S	F
Agapanthus umbellatus raralbus ...	S	F
From Messrs. Hugh, Low & Co., London.		
Phalænopsis Schilleriana	P	*
,, amabilis	P	*
,, grandiflora	P	*
,, Luddemanniana	P	F

A.—P. Plants. S. Seeds.

B.—* Succeeded. F. Failed.

APPENDIX II.—Continued.

Name.	A.	B.
From Messrs. Hugh, Low & Co., London.—Continued.		
Cyprepedium Spiceranum	P	F
,, hirsutissimum	P	F
,, javanicus nivens ...	P	*
,, venustum	P	F
,, Lawrencianum	P	*
,, bellatulum	P	F
Ærides Lobbii	P	*
,, Fieldingii	P	F
Saccolabium præmorsum	P	*
Vanda cœrulea	P	*
,, Amesiana	P	*
Angræcum sesquipedale	P	*
Dendrobium Wardianum	P	*
,, Jamesianum	P	*
,, Findleyanum	P	*
,, crassinode	P	*
,, thyrsifolium	P	F
From Messrs. Haage & Schmidt, Germany.		
Butter Bean	S	F
Cupressus sempervirens horizontalis ..	S	*
Cupressus sempervirens pyramidalis ...	S	*
Cryptomeria japonica	S	F
Biota orientalis	S	*
,, ,, aurea	S	F
Cupressus macrocarpa	S	F
,, glauca	S	F
,, Tournefortii	S	F
Thuja gigantea	S	F
Chamæryparis obtusa	S	F
,, Lawsoniana	S	F
From J. Cunningham, Esq., Trinidad.		
Stephanotis floribunda	S	*
From W. B. Smith, Esq., Paramaribo.		
Huntleya	P	*
Peristeria	P	*
Cychnoches	P	*
Brassia	P	*
Ornithidium	P	*
Catasetum	P	*
Brassavola	P	*
Gongora	P	*
Epidendrum	P	*
Paphinia	P	*
Bifrenaria	P	*
Schomburgkia	P	*
Epidendrum sthenopetalum	P	*
Oncidium Baueri ?	P	F
From the U. S. T. Nurseries, Dabadie, Trinidad.		
Latania Loddigesii...	P	*
Kentia Belmoreona	P	*
Seaforthia elegans	P	*
Dracæna amabilis	P	*
,, imperialis	P	*
,, metallica	P	*
,, braziliensis	P	*
,, stricta grandis	P	*
,, terminalis alba	P	*
,, Bella	P	*
,, Chelsonii	P	*
,, Shepherdii	P	*
,, elegans	P	*
,, regina	P	*
,, congesta	P	*
From J. L. Eccles, Esq., Trinidad.		
Mango No. 11	S	*

Name.	A.	B.
From J. J. Bowrey, Esq., Jamaica.		
Canna	S	*
From Dr. Nicholls, Dominica.		
Artocarpus Lacoocha	S	*
From Miss O'Brien, Trinidad.		
Impatiens Hawkerii	S	*
From Mrs. Cleaver, Trinidad.		
Mango (very small variety)	S	*
From D. W. Alexander, Trinidad.		
Orchids, miscellaneous	P	*
From Mr. J. Bailey, Trinidad.		
Panax Victoria	P	*
From J. C. Lewis, Esq., Trinidad		
Croton, varieties	P	*
From L'Horticulture Internationale, Brussels.		
Tillandsia Zahnii	P	F
Nepenthes O'Brieniana	P	*
Anthurium Warocqueanum	P	*
Alocasia imperialis	P	*
,, Bacchi	P	*
,, Johnstoni	P	*
,, Portei	P	*
,, Sedeni	P	*
,, metallica	P	*
Curmeria Wallisii	P	*
Aglaonema Rœbelini	P	*
,, nebrilosum	P	*
Kæmpferia atro-virens	P	*
Orchidanthes borneensis	P	*
Heliconia triumphans	P	*
Maranta Lindeni	P	*
,, Wagneri	P	*
,, Mazelli	P	*
,, Porteana	P	*
,, Wallisi	P	*
Philodendron Vanui	P	*
,, nelinoni	P	*
,, moliana	P	*
Phrynium variegatum	P	*
Phyllogatis rotundifolia	P	*
Tapeinotes carolinæ major	P	*
Cattleya Warocqueana	P	*
Dendrobium superbum anosum ...	P	*
,, Statterianaum	P	*
,, crumeratum	P	*
Warzcewixzella discolor	P	*
Microstylis bella	P	F
Cypripedium Boxalli	P	*
,, collosum	P	F
,, volonteanum	P	F
,, Lowri	P	*
Grammatophyllum Ellisi	P	*
Saccolabium cæleste	P	*
Ærides Houlleti	P	*
Phalænopsis Schilleriana	P	*
,, grandiflora	P	*
,, amabilis	P	*
,, Luddemannia	P	F
Cirropetalum O'Brienianum	P	*
Angræcum sesquipedale	P	*
Iriartea Bungerothi	P	F
Pritchandia Cusiana	P	*
Areca elegantissima	P	*

A.—P. Plants. S. Seeds. B.—* Succeeded. F. Failed.

APPENDIX II.—Continued.

ENTOMOLOGICAL REGISTER FOR THE YEAR.

No.	Scientific Name.	Popular Name.
	LEPIDOPTERA.	**Butterflies and Moths.**
312	Heliconius guirina, Cram...	*
313	Heliconius doris, Lim. ...	*
319	Emesis Lucinda, Cram. ...	
320	Palustra sp. ...	
321	Phlebodes Aletes, Hubn. ...	
322	Euptychia sp. ...	
323	Mesosemia Tullius, Fab. ...	
324	Lemonias Pseudocrispus, Westw. ...	
325	Eurema elathea, Cram ...	
326	Melanchroia exposita, Walk.	
327	Pyrrhopyga Charydis, Hew.	
328	Cycros Phaleros, L. (?) ...	
329	Eubagis Artemisia, Fab. ...	
331	Phycioides fragilis, Bates...	
333	Pythonides Tryxus, Cram.	
335	Eunomia sp. ...	
336	Euptychia Erichtho, Butl.	
337	Dismorphia sp. ...	
338	Cycnoo sp. ...	
339	Dismorphia Psamathe, Fab.?	
340	Calydna sp. ..	
342	Gauris Albertiana, Stoll. ...	
344	Phalo catilina, Cram. ...	
356	Pyrrhopyga acastus, Cr. ...	
357	Dilophonota ello, L. ...	
358	Marpesia pelens, Siel. ...	
360	Pachylia ficus, L. ...	
361	Opsiphanes sp. ...	Cane Sucker.
367	Thecla hemon, Cram. ...	
377	Endioptis hyalimata, L. ...	
378	Pseudosphinx obscura, Butl.	Frangipani Moth.
382	Anæa eurypile, Feld. ...	
383	Dynastor darius, F. ...	
385	Opsiphanes cassiæ, L. ...	Cane Sucker.
386	Tarucus monops, Zell ...	
387	Syrrhodia decrepitaria, Hubn. ...	
388	Telegonus sp. ...	Doctor.
389	Deltoidæ ...	
390	Adelpha Cytherea, L. ...	
391	Glenopteris omliferalis ...	
398	Telegonius fulgerator, Walch. ...	Doctor.
408	Aphrissa sp ...	
409	Telegonus phocus, Cram. ...	Doctor.
410	Phanus sp. ...	
411	Letis xylia, Guer ? ...	
412	Scmatura Actoen, Feld. ...	
	COLEOPTERA.	
311	Gymnetis Inculpata, Kirby*	
315	Cypherotylus gibbosus, Linn. ...	
343	Pailoptera chloris, Chev. ...	
350	Odontocheila marginegut-tata, Dej. ...	

No.	Scientific Name.	Popular Name.
	COLEOPTERA.—Continued.	
351	Cinyra arcuata, Lap & Gory	
352	Sphenophorus hemipterus, Linn. ...	
353	Tetracha smaragdina, Thoms. ...	
354	Crepidodera sp. ...	
355	Stenogaster linearis, Linn...	
348	Ægopsis curvicornis, Westw. ...	
349	Coptocycla annulus, Fabr.	
375	Dinoderus minutus, Fabr.	Bamboo borer.
376	Hopatrinus clathratus, F...	
392	Lagochirus aranciformis, L.	
393	Ischiodontus (?) ...	
394	Phanæus festivus, L. var...	
395	Odontocheila sp. ...	
396	Blapida sp. ...	
397	Phengodes sp. ...	
399	Scarites sp. ...	
438	Xyloborus perforans, Wall.	"Sugar Cane borer'
	HYMENOPTERA.	
314	Polistes versicolor, Oliv. ...	
316	Melipona favosa, F. ...	
330	Pepsis sp. ...	
318	Polistes sp. ...	
341	Nectarinia sp. ..	
346	Trigona ruficornis, Latr. (?)	
362	Mutilla sp. ...	
363	Mutilla rufiventris ...	
364	Xylocopa fassiata, St. Forg.	
369	Epicharis rustica, Oliv. ...	
405	Osprynchotus sp. ...	
406	Euglossa peliventris, Guér..	
	ORTHOPTERA.	
347	Umbonia spirosa, Burm. ...	
334	Meroncidius sp. ...	
345	Phipipteryx lineatus ...	
365	Steirodon dentatus, St. ...	
	NEUROPTERA.	
317	Trithemis sp. ...	Dragon fly.
371	n. g. near Anatga ...	,,
372	Micrathyria sp. ...	,,
373	Orthemis ferruginea ...	,,
374	Argia modesta, De Selby ...	,,
401	Trithemis sp. ...	,,
402	Trithemis umbrata, L. ...	,,
403	Pentala flavescens, F. ...	,,
404	Micrathyria sp. ...	,,

* Not B. M. determinations.

APPENDIX III.

METEOROLOGICAL RESULTS, TRINIDAD ROYAL BOTANIC GARDENS, FOR THE YEAR 1891.

Station 130 feet above Sea-level.

MONTH.	BAROMETER, Reduced Readings. 7 A.M. Bar.	BAROMETER, Reduced Readings. 3 P.M. Bar.	THERMOMETERS. Dry & Wet Bulbs. 7 A.M. D.	7 A.M. W.	3 P.M. D.	3 P.M. W.	Maximum.	Minimum.	Mean Temperature, Blackened Bulb in Vacuo.	Mean Temperature, Thermometer on Grass.	Humidity.	Tension of Aqueous Vapour.	Rainfall.	Dew Point, 7 A.M.	Dew Point, 3 P.M.	WIND. Direction.
	In.	In.	°	°	°	°	°	°	°	°	°		In.	°	°	
January ...	29·979	29·947	70·6	68·6	81·1	73·5	85·4	67·4	145·9	62·7	75·	·672	3·17	67·0	68·2	E
February ...	29·996	29·956	70·8	68·4	82·8	74·4	85·3	67·4	145·7	61·8	73·	·673	0·92	66·5	68·7	E
March ...	29·995	29·945	72·4	69·1	84·2	73·4	87·9	68·6	149·1	60·1	69·	·650	0·03	66·6	66·2	E
April ...	29·990	29·930	73·9	71·4	86·8	75·2	90·1	69·3	150·3	66·8	68·	·696	1·44	69·5	67·7	E
May ...	29·997	29·934	74·9	72·8	86·5	76·4	90·8	70·0	149·7	66·8	73.	·746	2·54	71·2	69·8	E
June ...	29·999	29·944	76·6	74·3	84·9	76·9	85·9	72·0	138·6	68·1	76·	·798	5·54	72·6	71·7	E
July ...	30·024	29·968	76·1	74·0	82·5	76·6	87·5	71·1	147·6	67·4	80·	·798	11·88	72·5	72·6	E
August ...	30·011	29·956	76·6	74·1	84·1	77·5	89·3	71·3	147·9	66·7	76·	·798	4·26	72·3	73·1	E
September ...	29·976	29·920	76·3	74·4	84·1	77·7	89·1	71·5	147·6	67·5	79·	·812	7·44	73·0	73·4	E
October ...	29·913	29·855	75·0	73·6	83·8	77·9	89·0	71·1	...	68·5	82·	·826	5·77	72·6	74·0	E
November ...	29·936	29·876	75·3	73·4	83·3	77·0	88·3	71·5	...	67·2	80·	·798	6·66	72·0	72·7	E
December ...	29·962	29·904	72·5	70·9	82·3	75·4	85·5	70·3	140·8	64·6	81·	·746	4·09	69·7	70·7	E
Average for year ...	29·981	29·927	74·2	72·0	83·8	75·9	87·8	70·1	146·3	65·6	76·	·751	4·47	70·4	70·7	E
Mean daily height of Barometer	29·954 inches.		Mean Annual Temperature				78·9					Total Rainfall		53·74 inches.		

APPENDIX III.—Continued.

TRINIDAD—ROYAL BOTANIC GARDENS.

ANNUAL RAINFALL, 1862 TO 1891, INCLUSIVE.

Year.	Jan. Ins.	Feb. Ins.	Mar. Ins.	April. Ins.	May. Ins.	June. Ins.	July. Ins.	Aug. Ins.	Sept. Ins.	Oct. Ins.	Nov. Ins.	Dec. Ins.	Total Rainfall in each year in Inches.	Decades.
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	·39	3·14	7·09	5·45	10·82	3·07	4·80	9·89	3·04	49·95	In the decade 4 years above and 6 years below 30 years average.
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	5·48	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	In the decade 4 years above and 6 years below 30 years average.
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	5·03	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	3·98	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	7·38	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 to 1891.	2·94	1·69	1·87	2·03	3·65	8·04	9·45	10·32	7·58	6·67	6·86	4·81	*65·91	

*Average Annual Rainfall for 30 years—1862 to 1891 = 65·91 inches.

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

AGRICULTURAL PRODUCE.

EXPORTS.

Nature of Produce.	Quantity.	Estimated Value.		
		£	s.	d.
Sugar	101,601,371 lbs....	661,789	0	0
Cacao—Home	16,188,493 lbs.	509,480	0	0
,, —Foreign	2,382,784 lbs.			
Molasses	1,535,415 gals..	53,492	0	0
Coconuts	14,334,054 No...	46,663	0	0
Rum	15,386 gals..	1,725	0	0
Coffee (Venezuelan)	212,516 lbs.	8,791	0	0
,, (Home grown)	8,325 lbs.			
Limes, Lemons	...	177	0	0
Oranges	...	78	0	0
Unenumerated	...	107	0	0
Dried Fruit	...	51	0	0
Lime Juice	...	333	0	0
Plants (Growing)	...	2,210	0	0
Tobacco—Home	978 lbs....	30	0	0
,, —Foreign	...	5,522	0	0
Vegetable Products	unenumerated ...	6,910	0	0
Total principal Agricultural Exports	... ...	£ 1,297,358	0	0
The total Export for 1891 was	... ...	£ 2,058,761	0	0
Including Pitch or Asphalt ...	... ...	105,968	0	0
Bitters, as large items ...	... ...	35,764	0	0

From the same Table I take a similar list of imported products.

IMPORTS.

Nature of Produce.	Quantity.	Estimated Value.		
		£	s.	d.
Tobacco—unmanufactured	553,501 lbs....	11,198	0	0
,, —manufactured	47,438 ,, ...	4,797	0	0
,, —Cigars and Cigarettes...	13,657 ,, ...	2,995	0	0
Vegetable Products—unenumerated	...	5,415	0	0
Corn of all kinds	227,259 bush.	48,056	0	0
Sugar	570,675 lbs....	6,901	0	0
Rum	3,172·29⅔ ,, ...	350	0	0
Meal, not wheaten	7,103 brls..	5,707	0	0
Tea	49,520 ...	3,662	0	0
Timber, Staves, Shooks, Shingles, &c.	...	10,088	0	0
Cacao (Venezuelan)	2,457,175 lbs....	69,392	0	0
Coconuts do.	71,870 ...	129	0	0
Coffee do.	302,455 lbs....	10,463	0	0
Coconut Oil	17,627 gals..	1,697	0	0
Flour	114,324 brls..	119,907	0	0
Rice	23,422,176 lbs....	146,383	0	0
Garlic and Onions	...	8,947	0	0
Plantains	...	4,006	0	0
Potatoes	...	11,062	0	0
Yams	...	818	0	0
Sweet Potatoes and Tannias	...	3,189	0	0
Farinaceous Substances	...	2,826	0	0
Total principal Agricultural Imports for 1891		£ 477,988	0	0
The total Imports for the year 1891 amounted to ...		£2,696,797	0	0