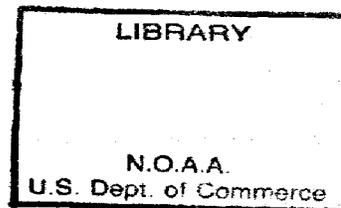


Council Paper No. 40 of 1894.



**BOTANIC GARDENS.**

Report of the Superintendent of the Royal Botanic  
Gardens, Trinidad, for the year 1893.

QC  
987  
.T7  
R59  
1893

---

*Laid before the Legislative Council on the  
19th March, 1894.*

---

*Last Annual Report, Council Paper No. 43/1893.*

*Registered No. of Correspondence relating to the subject—M. P. No. 1393/1894.*

---

TRINIDAD :

PRINTED AT THE GOVERNMENT PRINTING OFFICE, PORT-OF-SPAIN.

1894

**National Oceanic and Atmospheric Administration**  
**Climate Database Modernization Program**

**ERRATA NOTICE**

One or more conditions of the original document may affect the quality of the image, such as:

Discolored pages  
Faded or light ink  
Binding intrudes into the text

This document has been imaged through the NOAA Climate Database Modernization Program. To view the original document, please contact the NOAA Central Library in Silver Spring, MD at (301) 713-2607 x124 or [www.reference@nodc.noaa.gov](mailto:www.reference@nodc.noaa.gov).

LASON  
Imaging Subcontractor  
12200 Kiln Court  
Beltsville, MD 20704-1387  
March 28, 2002

## BOTANIC GARDENS.

### Report of the Superintendent of the Royal Botanic Gardens, Trinidad, for the year 1893.

*Council Paper No. 40 of 1894.*

*M. P. No. 1393/1894.*

ROYAL BOTANIC GARDENS,  
March 30, 1894.

SIR,

I beg to forward herewith my seventh Annual Report on the Royal Botanic Gardens and their work. The year under review ends December 31st. 1893.

I have again to record that the year's work has been a difficult one. The inclement weather which prevailed in 1892 continued for the greater part of the year 1893, and the rainfall as recorded at the gardens exceeded that of 1892 by 1.35 inches; 1892, 91.14 inches; 1893, 92.49 inches. The establishment suffered severely from the damage occasioned by the heavy downpours, and roads, drains, borders and beds have needed constant attention, vegetation suffered generally and plants of a tender character had to be frequently replaced, in all parts of the garden.

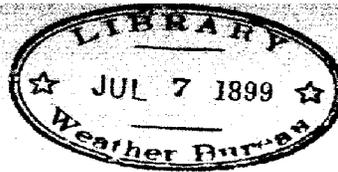
#### ESTABLISHMENT.

The staff of the gardens remains the same as last year. The Superintendent was absent on leave for three months commencing on April 26th during which period Mr. W. E. Broadway acted as Superintendent. Mr. Broadway was absent on fourteen days' vacation leave in September and ten days on Medical certificate in November.

#### METEOROLOGY.

The usual observations have been duly made at the Gardens, and the record of the Island rainfall has been continued. We have lost some observers, but new Stations having been added to these already existing, and our total number of observers in the Island is now ninety-nine. The annual returns are appended to this report. The barometric observations taken in this office have on several occasions proved of service to the shipping interest in Port-of-Spain, as we were able to give timely warning of disturbed weather which enabled suitable precautions to be taken by "flat" owners and Captains of vessels in port. Our means of making the barometric variations known to shippers is however inadequate for the purpose, and it is hoped that during 1894 a system of signals may be devised which will prove of greater service. Inquiries have been received from Cuba asking that intelligence of any disturbance may be communicated to them during the hurricane season, for it is well known that the storms which do so much damage further North, take their rise near the Equator, and that in Trinidad, we are from our geographical position able to make the first note of barometric variations common to such disturbances. Trinidad, as a rule, is not affected to any serious extent, but loss is occasionally caused to "flat" owners by these storms. It is well known that weather, which amounts only to a "strong blow" with us, may develop as it travels North into the much dreaded hurricane or cyclone, and a great service could be rendered by giving telegraphic communication of any serious barometric variation, to Stations at the Northern Islands during the season when such storms are known to be of frequent occurrence.

Towards the end of the year, I had the advantage of being able, through the kindness of His Excellency the Governor, to take an automatic record of the temperature at the Gardens office by the use of Daniel's Recording Thermometer. These records are of a very interesting character, but have not been taken for a sufficient length of time to enable any accurate deductions to be made. The instrument is clock-shaped and records on a circular diagram the rise and fall of temperature at all times during the day and night for each day of the week; each diagram containing a seven days' record. The instrument also answers as a clock and calendar, telling the time, the day and the date.



### HERBARIUM.

Steady progress has been made with the Herbarium during the year and about 2,500 specimens of the Flora have been added. Among the latter a new species of Orchid which has been named at Kew as *Epidendrum Hartii* n. sp. Rolfe. This was collected many years ago by Dr. Cruger, but to this time had remained without name. No consignment was sent to Kew for determination during the year, but our work has been to arrange the orders so that a complete sequence may be sent during the coming year, consisting of those which stand most in need of being authoritatively determined at Kew. The most numerous orders are now in readiness and will be despatched at an early date.

We have to thank the authorities at the Royal Gardens, Kew, for the unfailing courtesy they extend to us in the determination of garden and indigenous plants, and we have this year in addition to thank them for the important work of determining the fungus of the cane disease, the exposition of which has been treated in a masterly manner by Mr. Massee, with full illustrations in the *Annals of Botany*, December, 1893. In this work credit is given to our office as the first to call attention to the evil. Now that the character of the disease is known, it opens up the way for our cultivators to adopt successful means for its extermination. The name of the fungus is *Trichosporæ Sacchari*, Mass.

A disease of the Cocoa tree has also been determined by the same authorities as being caused by a fungus called *Fusarium album* Sacc, and I am glad to record their opinion that "no serious harm is likely to follow," as the plant is not a true parasite, but merely affects the places where the trees have suffered injury to the stem or branches.

### CORRESPONDENCE.

Colonial, foreign and local correspondence has been maintained, and the register shows a considerable increase on last year's number of communications sent out. The issue of a catalogue of the plants cultivated, has resulted in numerous applications for seed and plants from all parts of the world, which, added to our issue of circulars accounts for the increase.

### DECORATIVE WORK.

Plants were loaned out on seventeen different occasions (Public Balls and other entertainments), the total number used being 1,305, which is slightly less than the number for last year, the major portion of these were large plants in tubs.

The supply of decorative plants and flowers required for the residence of His Excellency the Governor has been fully maintained.

### FLOWER GARDEN.

Many of the beds containing shrubby flowering plants were renewed during the year and two or three beds of roses of the best imported kinds have been planted. Besides the usual routine work, we have had to remove several overgrown and unsightly trees, which have been replaced by plants of suitable character. A constant war has to be carried on in the Flower Garden, and indeed in all other sections, against the "Parasol Ant," *Ecodoma cephalotes*, and probably two other species and each nest is exterminated as soon as seen. From the proximity of adjoining woodlands, I fear we cannot hope to be ever free from this destructive pest, to destroy which, means considerable expenditure of labour annually.

The material which grows in the nests of these ants has now been determined as as the *mycelium* and *conidia* of one of the forms of fungus which develop large toadstools or mushrooms as an ultimate result, and is thought to be identical with a *species* observed by A. Möller in Brazil as being cultivated by South American ants. I have had the opportunity of making observations on the Parasol or Sauba ant in Nicaragua on the same ground as Belt studied them, but only a single species, *Ecodoma cephalotes*, which is the largest of this family was observed. In Trinidad we probably have three species, all growing the fungus in the nests, and all more or less destructive to vegetation.

The following Orchids flowered with us during the year 1893:—

<i>Epidendrum elongatum</i> , Jacq.	<i>Dendrobium formosum</i> , Roxb. var. <i>giganteum</i> .
" <i>Stansfordianum</i> , Baden.	" <i>moschatum</i> , Wallich.
" <i>Schomburgkii</i> , Lindl.	" <i>Parishii</i> , Rehb. f.
" <i>ciliare</i> , L.	" <i>sarvissimum</i> , Rehb., f.
" <i>nocturnum</i> , L.	" <i>nobile</i> , Lindl.
" <i>sthenopetalum</i> , Hook.	" <i>Farmeri</i> , Poxt.
" <i>variegatum</i> , Hook.	" <i>Aphrodite</i> , Rehb., f.
" <i>cochleatum</i> , L.	" <i>anosmum</i> , Lindl.
" <i>atropurpureum</i> , Willd.	" <i>bigibbum</i> , Lindl.
" <i>fragrans</i> , Swartz.	<i>Ceologyne flaccida</i> , Lindl.
" <i>patens</i> , <i>sv. sec.</i> , Lindl.	<i>Maxillaria</i> , (four species.)
" <i>jamaicense</i> , Lindl.	<i>Aspasia variegata</i> , Lindl.
" <i>Hartii</i> , Rolfe, n. sp.	<i>Cypripedium Lawrenceanum</i> , Rehb., f.
" <i>rigidum</i> , Jacq.	" <i>Harrisianum</i> , Rehb., f.
" <i>raniferum</i> , Lindl.	<i>Peristeria pendula</i> , Hook.
<i>Oncidium</i> <i>Papilio</i> , Lindl.	" <i>elata</i> , Hook.
" <i>ampliatum</i> , Lindl.	<i>Coryanthes</i> , sps.
" <i>citrinum</i> , Lindl.	<i>Broughtonia sanguinea</i> , R. Br.
" <i>Lanceanum</i> , Lindl.	<i>Miltonia spectabilis</i> , Lindl.
" <i>buridum</i> , Lindl.	<i>Catasetum tridecatatum</i> (its various forms.)
" <i>Sprucei</i> , Lindl.	" <i>Bungerothii</i> .
" <i>pulchellum</i> , Hook.	<i>Polystachya luteola</i> , Hook.
" <i>Kramerianum</i> , Rehb. f.	<i>Stanhopea grandiflora</i> , Lindl.
" <i>haematochilum</i> , Lindl.	<i>Aerides sarvissimum</i> , Lindl.
" <i>altissimum</i> , Sw.	<i>Camaridium ochroleucum</i> , Lindl.
" <i>triquetrum</i> , R. Br.	<i>Zygopetalum cochleare</i> , Lindl.
<i>Brassia caudata</i> , Lindl.	<i>Saccolabium guttatum</i> , Lindl.
" <i>maculata</i> , R. Br.	" <i>giganteum</i> , Lindl.
<i>Gongora atropurpurea</i> , Hook.	<i>Dichaea graminea</i> , Gr.
" <i>maculata</i> , Lindl.	<i>Loelia anceps</i> , Lindl.
" (white form) Hook.	<i>Brassarola cucullata</i> , R. Br.
<i>Cattleya Skinneri</i> , Batou, var. <i>parviflora</i> , Hook.	<i>Cirrhopetalum O'Brienianum</i> .
" <i>Gaskelliana</i> , Rehb., f.	<i>Rhynchostylis retusa</i> .
" <i>amethystoglossa</i> , Linden et Rehb., f.	<i>Cygnoches loddigesii</i> , Lindl.
" <i>mosaic</i> , Hook.	<i>Calanthe vestita</i> , Lindl.
" <i>superba</i> , Lindl.	<i>Branthes micrantha</i> , G. Rehb.
<i>Lochneria acuta</i> , Rehb.	<i>Trichocentrum iridifolium</i> , Sodd.
" <i>elegans</i> , Hook.	<i>Bulbophyllum pachyrrhachis</i> , Gr.
<i>Vanda tricolor</i> , Lindl.	<i>Bletia shepherdii</i> , Hook.
<i>Phalaenopsis amabilis</i> , Lindl.	<i>Hexadesmia fusiformis</i> , Gr.
" <i>cornu-cervi</i> , Blume et Rehb., f.	<i>Ponera prolifera</i> , G. Rehb.
" <i>grandiflora</i> , Lindl.	<i>Hexisea reflexa</i> , G. Rehb.
" <i>sumatrana</i> , Korth.	<i>Stenia pallida</i> , Lindl.
" <i>Schilleriana</i> , Rehb., f.	<i>Cyrtopodium cristatum</i> , Lindl.
" <i>violacea</i> , T & B.	" Grise.
<i>Stelis ophioglossoides</i> , Sw.	<i>Notylia punctata</i> , Lindl.
<i>Diacrium (Epidendrum) bicorvutum</i> , Benth.	<i>Cryptarrhena pallidiflora</i> , G. Rehb.
<i>Schomburgkia undulata</i> , Lindl.	<i>Ornithocephalus gladiatus</i> , Hook.
<i>Rodriguezia secunda</i> , Kunth.	" <i>Cruegii</i> , G. Rehb.
<i>Pleurothallis discoidea</i> , Lindl.	<i>Trizensis sulcata</i> , Lindl.
" <i>lepanthiformis</i> , G. Rehb.	<i>Jonopsis utricularioides</i> , Lindl.
<i>Bifrenaria aurantiaca</i> , Kth.	<i>Pogonia surinamensis</i> , Lindl.
<i>Angraecum Scottianum</i> , Rehb. f.	<i>Hypistephium parviflorum</i> , Lindl.
" <i>sesquipedale</i> , Thouars.	<i>Vanilla planifolia</i> , Andr.
<i>Dendrobium aggregatum</i> , Roxb.	" <i>phoenantha</i> , Rehb. f.
" <i>Pierardii</i> , Roxb.	" <i>grandifolia</i> , Lindl.
" <i>ambriatum oculatum</i> , Hook.	<i>Prescottia</i> , sps.
" <i>densiflorum</i> , Wallich.	<i>Spiranthes Hostmanni</i> , G. Rehb.
" <i>Jenkinsii</i> , Wallich.	<i>Spiranthes orchioides</i> .
" <i>formosum</i> , Roxb.	

As will be seen, many of these are of Botanical interest only and do not form part of the decorative collection. A part of the collection of the late Mr. J. Cunningham has been added to our stock during the year, having been acquired by purchase with the consent of His Excellency the Governor.

#### ROADS, WALKS AND DRAINS.

The main drive has been gravelled during the year, the work being carried on conjointly between ourselves and the Public Works Department, the former finding the material and the gardens the labour and supervision.

In the same way a large new drain was built to assist in carrying off the surface water from the main drive. This was a difficult operation, as in some places it had to be laid at a depth of eight feet from the surface. It works well and relieves the drive of storm water. This work was carried out under the immediate direction and supervision of the Superintendent. A surface drain was also made across the back road which prevents the overflow in the main drain near Guard House, which formerly did considerable damage at each heavy fall of rain. All the garden drains have been carefully overhauled, and repaired where necessary. A new piece of drain was put in between the garden's office and Government House, relieving the Palm avenue of a considerable amount of flood waters which formerly used to accumulate near the front of the Governor's residence.

The permanent paving of the large ravine has been considerably improved and two large side drains near the cemetery have been led thereto. The storm

waters which these now carry, used to do considerable damage to the nutmeg trees and especially to our large mangosteen tree. At the end of the ravine, near the Giant Bamboo, abutments have been put to the stone bridge, for greater safety of carriages coming to the nurseries. It is much improved in appearance.

#### VISITORS.

The number of visitors who registered at the garden's office is less than last year by 53 than for 1892, but this may probably be accounted for by the fact that the residence of the Governor was unoccupied for a portion of the year, His Excellency being on leave, and the building undergoing repair. There was a large attendance of visitors, however, who did not register.

Prominent among the names of the list are those of Mr. J. E. Haynes, Mayor of Newark, New Jersey. Major Mason, Chicago. Commodore Beaumont. Dr. and Mrs. Blandford. J. J. Quelch, Esq. Baron Eggers. Marquis of Hamilton. The Earl and Countess of Harewood. Judge Bell of Ontario. Mr. Henshaw of Staten Island. Sir Benjamin Stone, F.L.S., and Colonel Howard Vincent, M.P.

A great attraction has been the electric eel, *Gymnotus electricus*, especially to the officers and men of the various merchant and war-ships which have visited Port-of-Spain. We have now had this animal over three years. It was fed on worms and small fish.\*

#### NURSERIES.

I have again to report a successful year of nursery work. The stock on hand has been fully maintained. The distribution of orange plants was not so large as had been expected, notwithstanding their being advertised at the low rate of 25c. per 100.

The distribution for the year stands as follows:—

##### DISTRIBUTION OF PLANTS AND SEEDS, 1893.

Table I.

Where Distributed.	Plants.	Seeds.
To places outside the Island ... ..	6,089	411 packages.
To places outside the Island ... ..	...	11,500 } countable
Locally ... ..	15,598	350 } seeds.
Total Distribution ... ..	21,687	11,850 and 441 packages.

The detail of our receipts is seen in Table II. It should be observed that the receipts are naturally much less than the distributions. This arises owing to Table I. including all our plant sales as well as plants distributed free of charge, and exchanges. Table II. includes merely receipts from exchanges and the few purchases that are annually made.

##### PLANTS AND SEEDS RECEIVED IN EXCHANGE.

Table II.

Plants.	Seeds.
490	262 Packages.

Among our exchanges during 1893 we received a valuable collection of East Indian Orchids suitable for our warm damp climate. These were obtained for a consignment of *Oncidium ampliatum* or the "Yellow Bee" as it is locally called. We also obtained new varieties of *Eucharis* in exchange for ordinary tubers.

From the Royal Gardens, Kew, we received the usual annual consignment. The value of the contributions to our garden from this establishment cannot be too highly estimated, for the year seldom passes without plants of interesting and useful character being received from them for trial in our climate. Plants, it may be mentioned, which it would be almost impossible to procure anywhere else but at a public establishment, part of whose time is devoted to the task of searching for and supplying useful plants to Colonial Gardens. Among the plants sent in 1893 is one labelled "Coffee, sp. *Sierra Leone*," raised from seeds collected by Mr. Scott Elliott in Africa when on the delimitation committee of the Anglo-French Frontier in 1892.

\* I am sorry to say that it died on 22nd February, 1894.

In appendices are published the details of Plants and Seeds distributed and received. The Catalogue of plants cultivated was published early in 1893 and has, as before stated under correspondence, brought us enquiries for plants from Kew and from many other gardens in all parts of the world; and I am every mail receiving applications for copies from parties interested in Tropical cultures. The value of a Catalogue of this kind to such an institution as the Royal Botanic Gardens is therefore plainly shewn.

#### BULLETIN.

The Bulletin of the Royal Botanic Gardens has been continued, the numbers issued were: No. 17, containing classified lists of plants or Catalogue, April; No. 18, containing articles on the Rubber industry and Cane diseases and Pests in Trinidad; No. 19, September, consists of a report on "Cocoa" in Nicaragua, giving the details of the introduction of *Theobroma pentagona* or "Alligator Cocoa," *Theobroma Cacao* or "Nicaraguan Criollo," *Theobroma bicolor* or "Pastaste" Cocoa. The "Tiger Cocoa" of Veragua; and *Theobroma angustifolia* "Monkey Cacao," "Cacao Meco" or "Cocoa Mono" of Nicaragua. No. 20, December, contains articles on an experiment with Cocoa seeds, the Cola Nut, Cane diseases and extract, Circular notes, Nos. 2, 3, 4 and 5 and Cacao disease. These Bulletins are now, by the kind permission of His Excellency Sir F. N. Broome, K.C.M.G., issued at intervals. The series have been much in demand as affording current information of a practical character, of interest to planters and agriculturists in general. They also form a medium of exchange for obtaining similar information of what is being done in other parts of the world, as recorded by similar publications, and I have to thank many correspondents for regular exchanges.

#### ECONOMIC SECTION.

To record the work of this Section would simply mean for the greater part a repetition of the notes in former year's reports, but the Section has been carefully continued in accordance with the ascertained wants of cultivators. I, however, mention a few items.

**CALATHEA ALLOUYA** has yielded under good cultivation a fine crop of tubers much larger in size than any hitherto seen, and nearly twice the size of the tuber as ordinarily seen in the markets. Supplies of this were successfully sent to numerous Botanic Gardens, and information has been received in several instances that the plants are thriving well.

**MARANTA ARUNDINACEA.**—From tubers obtained direct from Bermuda, we have manufactured a small quantity of starch or arrowroot. This is certainly a finer sample than any previously grown and fully proves the constant need there is for change of plants and seeds from one district to another, as the quality of the product and the yield is much better from the imported plants.

**LEMONS.**—Our plants of these raised from seed of imported Sicily Lemons grow fruit of large size, and of excellent quality, but they are not much sought after, as the "Lime" is in most cases preferred.

**CITRONS.**—We have proved that Citrons can be grown of a fair size and of a good quality, but there appears to be no demand.

**PIPER NIGRUM.**—One of our plants this year produced good fruit. At the Convict Depôt a nice crop was harvested which has been reported as of excellent quality by the London brokers, a report being obtained through the favor of the Director, Royal Gardens, Kew (see Kew Bulletin for March, 1894). This culture is reported on fully in our Garden Bulletin, No. 21, and Kew Bulletin for February, 1894.

**UNCARIA GAMBIR.**—Plants which we reported last year as doing very poorly have taken a turn for the better, and one plant especially is growing freely and hopes are entertained that it may now be acclimatized.

**VANILLA.**—Our cultivation of the species mentioned last year has been continued with a view to testing which is most suitable for extended cultivation in Trinidad.

**CACAO.**—The system of drying Cacao artificially by hot water, which was introduced at the local Exhibition of 1890 by a model made at our Gardens, has gained much approval during the three years which have since elapsed, and two or three large sets of apparatus are at work and others are now being put up on several of our largest estates.

I note in Ceylon papers a discussion on the confusion existing as to the word "Cacao" and "Cocoa." So far as Trinidad is concerned this has but little interest. The tree is "Cacao" to Spanish speaking people, and "Cocoa" to the English, and those engaged in trade know what is meant by the use of different words for the same article, and it is probably impossible to devise a system of naming which would be universally adopted by commercial firms and the public in different parts of the world. I append a short extract from the Ceylon *Observer* for the information of our planters.

## COCOA (OR CACAO)—COCA—COCO—COCOANUT.

(From the Ceylon Observer of June 28, 1893.)

### "FOUR WORDS IN COMMON USE."

Probably no four words in common use have become more tangled and confused in the minds of learned and unlearned than *cacao*, *coca*, *coco*, and *cocoa*. Dr. Eugene Murray Aaron points out that even critics themselves stumble in attempts to clear away the confusion, and he mentions that the four distinct products to which the names belong—the first and last of great importance—are commonly mixed under the one term *cocoa*. These products are:—

1. *Cocoa* (*Theobroma Cacao*), the chocolate berry tree. This is an evergreen growing from 15 to 45 feet, a native of tropical America, but now become wild in Africa. It bears pointed pods, each of which contains a number of the nutritive seeds. From the seeds are derived "cacao nibs," "chocolate" (the most important substance), "cacao" (erroneously called *cocoa* in English countries), "broma," "cacao shells," and "cacao butter."

2. *Coca* (*Erythroxylon Coca*), the coca leaf bush. This shrub is found in the Andes, and is famed for the extraordinary stimulating properties of its leaves, which are known as "spadic" as well as "coca," and contain two alkaloids—cocain and hygrin.

3. *Coco* (*Colocasia esculentum*, et al.), the coco roots. The name is properly applied only to the tubers of several allied species of plants, which furnish a starch-laden food in tropical countries.

4. *Cocoa* (*Cocos nucifera*), the cocoanut palm, which yields the well-known hard-shelled fruit, together with valuable fibre.—*Straits paper*.

[No distinction is made between the product of the chocolate plant, namely "cocoa" and the palm fruit in the above, so far as spelling goes. As it is impossible to get Mincing Lane to give up the use of "cocoa" for pods and nibs, to make some distinction we, on the suggestion of Dr. Trimen, have dropped the "a" in the palm's name, making it "coconut," which is more in accordance with the botanical name, *Cocos nucifera*. This has been followed, we are glad to see, by the Kew authorities, by *Nature* and other London papers. We seldom or never hear of "coco roots."—Ed. C. O.]

We have made attempts during the year to find out whether any of the trees of the original type of Cacao, which is recorded as being formally cultivated, were still in existence in Trinidad (i.e.) that type grown before the introduction of the Forastero varieties. The evidence from Nicaragua and Ceylon tended to show that this type of Cacao possessed a seed with uncoloured embryo and cotyledons. Nearly all the Cacao on the estates of to-day, proves to be of that kind which produces a bean coloured in the interior; which appears to be a characteristic of the Forastero type. Towards the end of the year a pod was kindly sent to the gardens, gathered from the high woods in the interior, which produced the uncoloured bean, and was of the form which common consent accords to "Criollo" Cacao, and there appears thus to be little doubt that we have still the original variety with us. Whether it would pay to give more attention to its cultivation on account of its quality, is a matter to be proved by the planter, but it is fairly evident that if grown there would be no trouble in producing a *fac simile* of Ceylon Cacao in Trinidad, as it appears to be clear that the colour is not due to the influence of climate or cultivation, but to a difference in the variety of plant cultivated.

A collection of Exhibits was prepared by the Gardens and sent to the Chicago Exhibition, of which the following is a list:—

- |  |  |
|--|--|
| 1. Arrowroot—(From <i>Maranta Arundinacea</i> .)             | 32 & 33—Nutmeg or Mace.                              |
| 2. Starch—(From <i>Pachyrhizus tuberosus</i> .)              | 34. Fibre— <i>Abutilon periplocifolium</i> .         |
| 3. Starch—Extracted from seeds— <i>Cycas circinalis</i> .    | 35 & 36— <i>Chione</i> and <i>Mangrove</i> Barks.    |
| 4. Moka Coffee—(Small berried.)                              | 37. Mangrove Cutch.                                  |
| 5. Arabian Coffee—(Coffee Arabica.)                          | 38. Annatto.   |
| 6. Sansevieria Fibre—(From <i>Sansevieria longi-</i>         | 39. Cohune Nuts,                                     |
| 7. Agave Fibre— <i>Agave rigida</i> . [folia.]               | 40-45—Cacao Pods in solution.                        |
| 8. Agave Fibre— <i>Agave rigida</i> , var. <i>sisalana</i> . | 47 & 48—Logwood and Fustic.                          |
| 9. Trinidad Cigars.  | 49. Vegetable Blood—( <i>Croton gossypifolius</i> .) |
| 10. Chutney—(West Indian.)                                   | 50. Fish Poison— <i>Olibadum surinamensis</i> .      |
| 11. Cacao Vinegar—(From the pulp of the Cacao)               | 51. Ardrue— <i>Cyperus articulatus</i> .             |
| 12. Carap Oil— <i>Carapa Guianensis</i> . [Bean.]            | 52. Sarsaparilla— <i>Simlax officinalis</i> .        |
| 13, 14, 15, 16, 17, 18, 19, 20, 21—Essential Oils.           | 53. "Dragon's Blood"— <i>Pterocarpus marsupium</i> . |
| 22. Dried Cloves.  | 54. Delta Bark— <i>Alstonia Scholaris</i> .          |
| 23, 24, 25, 26—Bamboo poles.                                 | 55. Rubber— <i>Castilloa elastica</i> .              |
| 27. Vanilla.   | 56. Areca Nut— <i>Areca Catechu</i> .                |
| 28. Cinnamon.  | 57. Letter Wood— <i>Brosimum Aubletii</i> .          |
| 29 & 30—Tinctures.   | 58 to 72—Miscellaneous Exhibits.                     |
| 31. Balsam Copaiva.  |  |

Besides this a collection of 50 large and small plants were prepared and forwarded.

As will be observed from the Section under the head of "Bulletin," much that would otherwise appear in an annual Report is already in the hands of readers, and without the delay of waiting some months for publication. The issue of "Circulars" has also been commenced during the year and they have been fairly successful in drawing attention *at once* to matters of importance in connection with Agricultural matters.

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

THE HON'BLE THE COLONIAL SECRETARY,  
Trinidad.

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	...	...	...	...	Ceylon.
" "	...	...	...	...	Jamaica.
" "	...	...	...	...	Calcutta.
" "	...	...	...	...	S. Australia.
" "	...	...	...	...	Hong Kong.
" "	...	...	...	...	Mauritius.
" "	...	...	...	...	British Guiana.
" "	...	...	...	...	Dominica.
" "	...	...	...	...	St. Vincent.
" "	...	...	...	...	Grenada.
" "	...	...	...	...	St. Lucia.
" "	...	...	...	...	Antigua.
ALBRICHT SEITZ, Esq.	...	...	...	...	Tobago.
MESSRS. J. VEITCH & SONS	...	...	...	...	England.
M. RUSSEL COTES, Esq.	...	...	...	...	England.
CAPTAIN CARR...	...	...	...	...	Bermuda.
SECTY. AGRICULTURE	...	...	...	...	Queensland.
I. RAND, Esq.	...	...	...	...	Brazil.
MRS. JAMES	...	...	...	...	Bermuda.
DR. H. A. NICHOLLS	...	...	...	...	Dominica.
A. C. BANCROFT, Esq.	...	...	...	...	Jamaica.
MARQUIS OF HAMILTON	...	...	...	...	England.
MESSRS. PARKE, DAVIS & Co.	...	...	...	...	U. S. A.
HON. W. LOW	...	...	...	...	Tobago.
G. S. DAVIS, Esq.	...	...	...	...	U. S. A.
S. L. MEAD, Esq.	...	...	...	...	U. S. A.
M. BUYSMAN, Esq.	...	...	...	...	Holland.
SECTY. DEPT. AGRICULTURE, WASHINGTON	...	...	...	...	U. S. A.
SOCIETE ANONYME	...	...	...	...	Brussels.
J. R. BOVELL, Esq.	...	...	...	...	Barbados.
SEÑOR A. ARGUELLO	...	...	...	...	Granada, Nicaragua.
SECTY. PHARMACEUTICAL SOCIETY	...	...	...	...	England.
MISS WILLINGTON	...	...	...	...	Tobago.
GERMAN OFFICERS	...	...	...	...	Warship "Stosch."
— SEWELL, Esq.	...	...	...	...	England.
SEÑOR SOKOLOWEKI	...	...	...	...	Colon.
MESSRS. HUGH, LOW & Co.	...	...	...	...	England.
CAPTAIN SEMINI	...	...	...	...	Barbados.
A. F. HERNAMAN, Esq.	...	...	...	...	Barbados.
J. S. GREENIDGE, Esq.	...	...	...	...	Barbados.
C. KENRICH GIBBONS, Esq.	...	...	...	...	Barbados.
J. O'BRIEN, Esq.	...	...	...	...	England.
REV. FATHER BERTRAND	...	...	...	...	France.
REV. RICHARD...	...	...	...	...	(For Barbados.)
J. W. GILLESPIE, Esq.	...	...	...	...	Santa Barbara, U. S. A.
CAPTAIN POWLES	...	...	...	...	R. M. S. Company.

## 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 acknowledgment to our correspondents in the various Institutions which favour us with exchanges, and present similar returns :—

NAME.	NAME.
<b>From Royal Gardens, Kew.</b>	<b>From Botanic Gardens, Saharanpur.</b> <i>Continued.</i>
Cephalostachyum capitatum	Butea frondosa.
Stapelia gigantea	Peach "Roem".
Melhania erythroxylon	Ipomea rubro cœrulea.
Macrozamia spiralis	Ehretia serrata.
Raphia vinifera	Beaumontia grandiflora.
Piper guineense (Ashantee Pepper)	Phoenix humile.
Bambusa siamensis	Dillenia indica.
Dictyospermum fibrosum	Amaryllis, Hybrid.
Andropogon schœnanthus	
Acanthaceæ (Sierra Leone)	<b>From Botanic Garden, Calcutta.</b>
Alsodeia subintegrifolia	Phoenix rupicola.
Amorphophallus sp. (Gambia)	Wallichia disticha.
Aristolochia Gigas Sturtevantii	Bambusa siamensis.
Aroidæ (Niger Territory)	Phoenix paludosa.
Bassia Parkii	
Bauhinia natalensis	<b>From Botanic Garden, Singapore.</b>
Burbidgea nitida	Vateria sp.
Cassia sp. (Sierra Leone)	Gnetum edule.
Coffea arabica var. mexicana	Hoppea sp.
Coffea sp. (Sierra Leone)	Xerosperma sp.
Erythroxylon Coca. (true Ceylon)	Livistona chinensis.
Fordia cauliflora	Areca sp.
Godwinia Gigas	Ochrosia borbonica.
Rhynchospora aurea	Dracœna gracilis.
Strychnos sp. (W. Trop. Africa)	Aristolochia Roxburghiana.
Tacsonia sanguinea	Semecarpus Anacardium.
Vanilla sp. Macassar yields Vanilloes of com- [merce.]	Caryota urens.
Alstonia verticillatus	Verschaffeltia splendida.
Aristolochia labiosa	Sinesanthrus fibrosus.
Aristolochia tricaudata	
Bauhinia sp. (Sierra Leone)	<b>From Botanic Garden, Hong Kong.</b>
Camœnsia maxima	Macadamia ternifolia.
Cassipourea sp. (Natal)	Biota orientalis.
Cassalpinia sp. (Sierra Leone)	Neesesia thyrsoidea.
Caryota Rumphiana	Doryanthes Palmeri.
Cherimoyer (Anona sp. Andes)	Viburnum odoratissimum.
Chrysophyllum sp. (Sierra Leone)	Lagerstromia subcosta.
Cordia monoica	Clematis Meyeniana.
Cycas Seemannii	Coffea bengalensis.
Dermatobotrys Saundersia	Pinus sinensis.
Eleodendron orientale	Camellia reticulata.
Gardenia sp. (Sierra Leone)	Cassalpinia vernalis.
Gardenia sp. (N. Queensland)	Hedychium coronarium.
Legume (Natal)	Cassalpinia Nuga.
Legume (Zululand)	
Legume (Rio de Janeiro)	<b>From Botanic Garden, Bombay.</b>
Nephrosperma Van Houtteana	Crotalaria sp.
Pandanus sp. (Sierra Leonè)	
"Runner, coloured flowers" (Brisbane)	<b>From Botanic Garden, Bangalore.</b>
Sarcocephalus cordatus	Soymeda febrifuga.
"Plant from Sierra Leone"	Poinciana elata.
"Small tree, Sierra Leone"	
Strobilanthes cuspidatus	<b>From Botanic Garden, Adelaide.</b>
Strobilanthes gossypinus	Hakea pandanicarpa.
Dillenia sp. (Sierra Leone)	Eucalyptus grandifolia.
Kigelia sp.	Polyalthea Holtzeana.
Roupellia sp. (Sierra Leone)	Eucalyptus cornuta.
Ilex paraguayensis	Eucalyptus pyriformis
Doryanthes Guilfoyleii	" leucoxydon
	" rostrata
	" Lehmanni
	" corynocalyx
	" calophylla
	" gomphocephala
	" miniata
	" gigantea
	Vitis acitosa.
	Eleocarpus australe
	Acacia aculeaticarpa
	" drepanocarpa
	" sentis
<b>From Botanic Gardens, Ceylon.</b>	
Cacao "Red"	
Areca glandiformis	
<b>From Botanic Gardens, Saharanpur.</b>	
Pennisetum triflorum	
Ficus foveolata	
Catalpa Kœmpferi	
Anogeissus acuminata	
Anogeissus latifolia.	
Lagerstromia regina.	
Wendlandia puberula.	
Sterculia elata.	
Heftage madablota.	

## APPENDIX II.—Continued.

NAME.	NAME.
<b>From Botanic Garden, Adelaide.—Con.</b>	<b>From Botanic Garden, Melbourne.—Con.</b>
<p>Acacia Simsii      „ auriculiformis      „ longifolia      „ cyanophylla      Adansonia Gregorii      Pithecolobium pruniosum      Spondias Solandii      Alna cymosa      Elaeagnus cyanus      Aliphitonia excelsa      Casalpinia Tara      Fuenela rhomboidea      Tristania conferta      Heptapleurum venulosum      Melaleuca symphyocarpa      „ Preistana leiostochya      „ hypericifolia      Cochlospermum Fraseri      Pittosporum bicolor      Melaleuca genistifolia      Hakea auriculata      Callistemon brachyandros      „ salignus      Ganophyllum falcatum      Metrosideros paradoxa      Hakea cucullata      Myrsinaceae Cunninghamii      Nephelium Cueocarpum      Brachychiton diversifolium      Hemicyclia sepriaria      Agonis flexuosa      Brachychiton paradoxum      Cassia Brewsterii      Callistemon rigidus      „ speciosus      Callistris verrucosa      Casuarina stricta      „ humilis      Cupania semiglaucis      Doryanthes Palmeri      Dysoxylum Schultzei      Frenela intratropica      Elaeodendron tomentosum      Syncarpia laurifolia      Helicia australasica      Grevillea Chrysodendrum      „ heliosperma      „ mimosoides      „ robusta      Gardenia megasperma      Rhus rhodantha      Zanthoxylum parviflorum      Nephelium tomentosum      Sterculia aurifolia      „ heterophylla</p>	<p>Kennedyia rubricunda.      Casuarina suberosa.      Acacia salicina.      Cordyline Baueri.  <b>From Botanic Garden, Natal.</b>      Watsonia densiflora.      „ „ alba.      Celtis Kraussiana.      Gomphocarpus sp.      Anona senegalensis.      Cordyla africana.      Scaevola Lobelia.      Calodendrum capensis.      Agapanthus umbellatus var. albus.      Dais cotinifolia.      Apodytes dimidiata.      Clerodendron glabrum.      Morua iridioides.      Gomphocarpus physocarpus.      Combretum erythrophyllum.      Tephussia Kraussiana.      „ grandiflora.      Oncoba Kraussiana.      Gloriosa virescens.      Turcea obtusifolia      Dissotis incana.      Zanthoxylon capense.      Limnanthemum Thunbergianum.      Strelitzia angusta.</p>
<b>From Botanic Garden, Melbourne.</b>	<b>From Botanic Gardens, Jamaica.</b>
<p>Macadamia ternifolia      Morinda jasminoides      Sterculia diversifolia      Syncarpia laurifolia      Sypoum glandulosum      Telopea speciosissima.      Pittosporum rhombifolium.      Grevillea robusta.      Tecoma australis.      Doryanthes Palmeri.      Owenia venosa.      Eustrephus latifolius.      Amnibium slatum.      Notelcea longifolia.      Sterculia acerifolia.      Angophora lanceolata.      „ subvelutina.      Acacia juniperina.      „ decurrens.      „ cyanophylla.      Myrsine variabilis.      Stenocarpus salignus.      Callistemon phoeniceus.      Hymenocarpus flavum.</p>	<p>Amyris Plumieri.      Samadora indica.  <b>From Botanic Gardens, Grenada.</b>      Ptychosperma alba.      Cycas media.      Cola acuminata.      Sobralia macrantha.      Catostemma fragrans.      Roses, assorted.      Eucalyptus, sp.      Cryptomera elegans.      Cyphomandra Betacea.      Cryptomera japonica.      Cupressus funebris.      Crœton (var).      Acacia sp.      Dictyosperma alba.      Ceropegia Sandersoni.</p>
	<b>From Botanic Gardens, St. Vincent.</b>
	<p>Catostemma fragrans.      Caryota urens.</p>
	<b>From Botanic Gardens, Antigua.</b>
	<p>Livistona subglobosa.      Thrinax sp.</p>
	<b>From Botanic Gardens, British Guiana.</b>
	<p>Euterpe sp. near utilis.      Guadua angustifolia, Kth.      Borassus flabelliformis.</p>
	<b>From Messrs. Parke, Davis &amp; Co., U.S.A.</b>
	<p>Serenoa serulata.</p>
	<b>From J. B. Beach, Esqre., U.S.A.</b>
	<p>Roses, assorted.</p>
	<b>From Messrs. Haage &amp; Schmidt, Germany.</b>
	<p>Cupressus pyramidalis.      Biota orientalis.      Cupressus funebris.</p>

## APPENDIX II.—Continued.

NAME.	NAME.
<b>From Messrs. Hage &amp; Schmidt, Germany.—Continued.</b>	<b>From Botanic Gardens, Rio Janeiro, Brazil.</b>
<i>Cupressus guadalupensis.</i>	<i>Attalea speciosa.</i>
<i>Casuarina equisetifolia.</i>	<i>Elais guineensis.</i>
<i>Chomæcyparis Lawsoniana.</i>	<i>Coffea liberica.</i>
<i>Cedrus Deodara.</i>	<i>Veronia macrophylla.</i>
<i>Biota elegantissima.</i>	<i>Uncaria sp.</i>
<i>Casuarina quadrivalvis.</i>	<i>Herminiera elaphroxylon.</i>
<i>Chamæcyparis pisifera.</i>	<i>Sesbania paulensis.</i>
" <i>squarrosa.</i>	<i>Pinanga Kuhlil.</i>
" <i>plumosa.</i>	<i>Acacia leucocephala.</i>
<i>Junipera Bermudiana.</i>	<i>Crotolaria semperflorens.</i>
<b>From the Secretary Agri-Horticultural Society, Madras.</b>	<b>From Queensland.</b>
<i>Strychnos Nux vomica.</i>	<i>Rubus flavus</i> "Indian Raspberry."
<b>From J. Campbell, Esqr., Jamaica.</b>	<b>From Dr. M. M. Child, U.S.A.</b>
Yams.	<i>Phyllocactus multiflora.</i>
<b>From Messrs. Wright, Layman &amp; Co., London, England.</b>	" <i>americana.</i>
<i>Casia Absus</i> (?)	" <i>sp.</i>
<b>From Dr. Nicholls, Dominica.</b>	<i>Cereus McDonaldi.</i>
Tous les mois.	<i>Rhipsalis paradoxa.</i>
<b>From — Rand, Esqr., Para, Brazil.</b>	<i>Cereus speciosissimus.</i>
Cacao.	<i>Phyllocactus Folli.</i>
<b>From M. Buysman, Esqr., Holland.</b>	" <i>rosea grandiflora.</i>
<i>Herminiera elaphroxylon.</i>	" <i>Feastii.</i>
<b>From Dr. Henderson, Jamaica.</b>	" <i>bicolor.</i>
<i>Pimenta officinalis.</i>	" <i>Aramanthimus.</i>
<b>From Messrs. Thos. Christy &amp; Co., London, England.</b>	<i>Echinopsis Eggersii.</i>
<i>Polygonum sachalinense.</i>	<i>Stapelia sp.</i>
<i>Menthol.</i>	<i>Cereus Dr. Regel.</i>
<b>From Messrs. Hugh, Low &amp; Co., London, England.</b>	<i>Geranium, Lady Compton.</i>
<i>Cypripedium Harrisianum.</i>	<i>Adlumia cirrhosa.</i>
" <i>Sedenii.</i>	<b>From H. W. Dihm, Esqr., U. S. T. Nurseries, Trinidad.</b>
" <i>venustum.</i>	<i>Areca alba.</i>
" <i>Volonteanum.</i>	<i>Amaryllis.</i>
" <i>Lawrencianum.</i>	<i>Pandanus utilis.</i>
" <i>javanicum.</i>	<i>Caryota sobolifera.</i>
" <i>Curtisii.</i>	<i>Phoenix</i> (3 or 4 kinds).
" <i>bellatulum.</i>	<b>From L. Libert, Esqr., Trinidad.</b>
" <i>Lawsonianum.</i>	<i>Sabal glaucescens.</i>
<i>Dendrobium Pierardii.</i>	<b>From J. C. Lewis, Esqr., Trinidad.</b>
" <i>Wardianum.</i>	Fruit trees:—
" <i>Crassinode.</i>	No. 1, alba, yellow.
" <i>Phalenopsis Schroderianum.</i>	"    2, Fruita de conda.
" <i>Dearei.</i>	"    3, yellow, Bell apple.
" <i>albo sanguineum.</i>	<b>From C. W. Meaden, Esqr., Trinidad.</b>
" <i>formosum giganteum.</i>	Cacao pods.
" <i>Findleyanum.</i>	<i>Erythrina umbrosa.</i>
" <i>thyrsiflorum.</i>	<b>From E. Masson, Esqr., Trinidad.</b>
" <i>Brymerianum.</i>	Cacao pods.
<i>Oclogyne pandurata.</i>	<b>From E. Waterman, Trinidad.</b>
<i>Vanda cœrulea.</i>	<i>Panax Victoria.</i>
" <i>Amesiana.</i>	<b>From Ranghasammy, Trinidad.</b>
<i>Arides Fieldingii.</i>	<i>Areca Catechu.</i>
" <i>expansum Leonix.</i>	<b>From R. Spooner, Esqr., Trinidad.</b>
<i>Angraecum sesquipidale.</i>	<i>Chrysanthemum.</i>
" <i>articulatum.</i>	<b>From George Vahl, Esqr., Trinidad.</b>
" <i>citratum.</i>	Vegetable seeds (various.)
<i>Saccolabium Blumei.</i>	<b>From His Honour Mr. Justice Nathan, Trinidad.</b>
<i>Vanda Kimballiana.</i>	Orchids.
<i>Phalenopsis rosea.</i>	<b>From J. Bailey, Esqr., Trinidad.</b>
" <i>Schilleriana.</i>	<i>Panax Victoria.</i>
" <i>amabilis.</i>	<i>Coleus.</i>
" <i>grandiflora.</i>	<b>From Mr. Francis, Trinidad.</b>
" <i>Luddemaniana.</i>	<i>Crotons.</i>

## APPENDIX III.

## METEOROLOGICAL RESULTS, TRINIDAD ROYAL BOTANIC GARDENS, FOR THE YEAR 1893.

Station 130 feet above Sea-level.

MONTH.	BAROMETER.		THERMOMETERS.								WIND.	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 Væcûo.	Mean Temperature, Thermometer on Grass.						
	7 A.M.	3 P.M.	7 A.M.		3 P.M.											
	Bar.	Bar.	D.	W.	D.	W.	Direction.									
	In.	In.	°	°	°	°	°	°	°	°	°	°	In.	°	°	
January ...	29.973	29.890	69.30	67.66	81.45	73.80	85.80	65.51	114.41	62.25	E.&N.	78.	.673	3.43	66.38	68.60
February ...	29.994	29.947	70.00	68.48	82.66	73.81	86.07	67.11	114.00	62.00	E.&N.	75.	.672	1.85	67.31	67.89
March ...	30.016	29.965	69.16	67.46	84.70	74.12	87.51	65.16	123.67	60.67	E.	72.	.650	0.19	66.14	67.25
April ...	29.999	29.946	71.96	70.62	81.46	75.63	88.93	67.53	118.00	63.00	E.	84.	.759	3.61	69.62	71.67
May ...	29.988	29.938	75.13	74.86	81.93	76.10	88.10	70.20	111.70	67.20	E.	78.	.759	11.35	70.41	72.20
June ...	30.013	29.957	76.75	74.93	82.34	76.44	89.18	69.	110.00	65.89	E.	80.	.812	10.19	73.67	72.48
July ...	29.993	29.944	74.67	73.54	81.96	77.13	87.55	69.27	104.89	64.81	E.	84.5	.826	13.28	72.73	73.90
August ...	30.002	29.946	74.26	73.16	83.96	81.12	88.44	69.79	...	...	E.	87.	.887	16.32	72.36	79.25
September...	29.994	29.930	76.27	74.86	82.70	78.86	89.33	70.33	167.33	70.03	E.	86.	.866	11.73	73.86	76.29
October ...	29.912	29.845	75.03	74.00	83.48	78.12	89.70	70.48	163.61	69.12	E.&N.	84.	.840	5.47	73.06	74.53
November...	29.944	29.880	74.20	73.00	82.98	79.06	87.96	69.63	163.00	68.00	N.	82.	.798	7.84	72.13	73.13
December ...	29.936	29.882	73.35	71.28	82.31	75.13	86.72	69.06	160.00	68.89	N.	78.5	.733	7.23	69.75	70.32
Average } for year. }	29.987	29.922	73.34	71.98	82.49	76.27	87.44	68.68	131.87	65.52	E.&N.	80.75	.772	7.70	70.61	72.19
Mean daily height of Barometer }	29.954 inches.		Mean Annual Temperature }				78.01						Total Rainfall }		92.49 inches.	

APPENDIX III.—Continued.

RAINFALL FOR THE ISLAND OF TRINIDAD FOR THE YEAR ENDING 31st DECEMBER, 1893.

No. of Station	Diameter of Gauge, Govt. or Private.	STATION.	January.	Feb'y.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.	Total.
1	8 e.	St. Anne's—Royal Botanic Gardens	3.43	1.85	0.19	3.61	11.35	10.19	13.23	16.32	11.73	5.47	7.84	7.28	92.49
62	8 e.	Port-of-Spain—Police Station	1.83	1.99	0.26	...	14.20	10.32	13.33	7.65	6.79	5.04	7.65	6.25	...
64	8 e.	Royal Gael	2.20	1.80	0.26	2.67	10.35	6.77	13.03	8.14	5.33	1.09	6.61	3.40	61.45
5	5 e.	St. Joseph—Police Station	1.53	2.11	0.52	2.64	2.71	8.96	12.36	8.96	8.66	5.44	8.52	4.06	64.45
6	5 e.	Tunapuna Village—Macoya Estate	0.63	2.24	0.15	...	7.98	8.26	13.01	8.54	7.37	7.04	...	5.72	...
44	8	Arouca—Bon Air	1.17	1.73	3.08	1.94	9.03	9.03	13.01	8.20	7.37	7.04	...	...	...
9	5	Cunuto—Santa Teresa	3.09	3.57	3.08	6.51	24.48	11.00	14.16	7.63	8.21	3.69	14.33	12.12	111.77
49	5	Arima—Garden Estate	...	...	...	3.30	12.53	9.60	12.42	...	...	6.73	7.14	...	...
7	5	Arima	...	...	...	...	...	...	...	...	...	...	...	...	...
11	5	Toco—La Sagesses	3.12	2.49	3.21	2.95	12.13	9.80	16.04	6.85	7.39	7.14	16.53	10.37	...
10	5 e.	Toco—Police Station	3.70	3.01	3.56	3.45	12.27	9.80	16.04	6.85	3.22	2.79	11.14	9.53	83.82
14	5	Conva—Exchange Village	0.52	0.40	0.10	4.26	7.55	6.95	8.31	12.19	8.20	8.57	12.38	14.11	...
16	5 e.	Conva—Police Station	1.57	0.30	0.28	5.73	9.62	7.80	7.51	10.78	8.16	9.15	11.20	6.66	69.19
19	8	Montserrat—Tortuga Estate	...	...	...	...	...	...	...	...	...	...	...	...	78.66
18	5 e.	Montserrat—Police Station	1.70	2.54	0.55	5.60	10.57	9.67	12.47	10.93	5.88	5.21	11.04	5.69	81.85
25	5 e.	Oropuche—Police Station	1.95	2.14	0.33	6.37	7.92	10.10	5.77	8.42	4.12	2.89	9.43	5.32	64.81
26	8	Savana Grande—North	2.84	3.64	0.10	6.41	11.90	10.16	14.26	9.78	6.94	2.80	19.08	9.34	97.25
27	5	Cedros—Police Station	2.20	2.84	2.16	8.33	5.25	4.89	4.04	6.30	4.10	2.20	6.24	6.57	56.72
60	...	Cedros—Columbia (c.w.)	2.55	1.25	1.90	6.80	6.10	4.81	5.75	8.99	5.66	2.85	6.00	10.00	62.66
72	...	Cedros—St. Marie Estate	2.80	2.77	2.28	8.67	4.30	5.05	4.56	6.79	4.66	3.02	6.07	6.87	57.93
73	...	Cedros—La Retrait Estate	3.25	4.05	1.95	9.65	8.50	10.55	6.90	8.05	6.35	3.95	8.40	6.55	78.65
2	5	Tucker Valley	2.07	1.06	0.33	3.56	10.20	9.28	9.86	11.21	13.55	9.19	8.88	10.49	89.68
21	8	Sangre Grande—Sta. Estella Estate	3.61	5.34	2.30	6.96	20.48	9.26	10.51	5.98	5.31	3.59	14.84	16.58	104.75
22	5 e.	Princes Town—Police Station	1.90	3.91	2.65	5.19	7.40	8.62	12.89	11.43	3.87	4.84	16.20	9.91	88.81
16	8	Claxton's Bay—Mt. Pleasant Estate	1.49	2.56	1.29	4.61	7.38	6.26	10.13	10.25	4.22	5.83	10.68	2.24	66.94
31	5	Mayaro—St. Joseph Estate	2.45	3.04	0.84	9.30	11.11	13.01	7.29	11.28	3.00	6.43	17.38	15.61	101.85
32	5 e.	Mayaro—Police Station	3.66	3.04	0.84	9.30	11.11	13.01	7.29	11.28	3.00	6.43	17.38	15.61	101.85
12	5 e.	Chaguana—Perseverance Estate	2.33	0.10	0.45	0.43	6.26	9.21	6.69	8.17	7.05	12.04	5.96	10.25	65.94
50	8 e.	Chaguana—Convict Depot	2.71	1.68	0.78	4.70	11.09	7.86	13.81	11.74	7.65	5.55	10.62	8.73	86.92
61	...	Chaguana—Petersfield (n.s.p.)	2.14	...	...	...	...	...	...	...	10.58	10.39	8.92	10.76	...
8	...	Chaguana—Police Station	4.51	1.40	0.90	2.15	27.65	10.49	11.26	13.33	13.32	6.20	12.19	19.13	123.53
28	5	Erin—La Ressource Estate	2.19	3.05	2.50	5.79	4.70	7.12	7.60	8.07	2.15	2.68	7.63	6.93	60.34
46	8	Erin—Chatham	2.82	3.85	2.20	11.12	10.70	18.15	11.70	14.75	6.40	3.32	9.82	6.17	101.00
29	8 e.	Moruga—Police Station	2.20	2.02	2.10	6.52	10.21	6.95	8.75	9.36	6.43	8.62	12.80	9.24	80.20
30	8 e.	Moruga Road—Rest House	5.63	7.34	2.78	9.15	14.35	16.83	13.46	13.63	8.26	10.30	15.93	13.37	136.03
33	...	St. Juan—Barataria Estate	...	...	...	...	...	...	...	...	...	...	...	...	...
34	...	Naparima—Harmony Hall Est. (n.h.)	1.36	4.75	1.82	6.94	9.75	7.69	13.03	3.98	7.36	7.11	6.63	5.91	...
35	5	Naparima—Tarouba Estate (r.h.)	1.35	3.53	1.45	4.84	7.70	12.43	14.73	12.87	4.93	4.43	13.17	7.12	94.30
36	...	Naparima—Williams Estate (w.v.)	1.94	3.98	...	...	...	...	...	...	4.76	1.81	7.19	8.92	...
38	...	Naparima—Union Hall Estate (u.)	1.60	2.73	...	...	...	...	...	...	4.48	3.60	11.92	5.14	...
39	...	Naparima—Leit. Morne Estate (r.m.)	1.63	2.60	1.09	4.53	7.87	10.70	10.37	9.18	2.15	4.25	13.81	6.35	74.53
40	...	Naparima—Goconda Estate (g.c.)	1.26	3.23	0.32	5.02	7.42	9.56	9.45	8.91	3.63	4.05	11.10	7.29	71.27
41	...	Naparima—Cedar Hill Estate (c.h.)	1.89	2.55	2.15	4.66	8.08	10.63	13.43	9.01	3.39	4.23	14.10	8.64	82.76
42	...	Naparima—St. Madelene Usine (u.s.m.)	1.13	2.70	1.97	6.22	7.23	11.43	11.30	10.51	3.64	4.01	13.94	8.41	...
59	...	Naparima—Plein Palais (p.p.)	1.30	2.76	1.97	6.22	7.23	11.43	11.30	10.51	3.64	4.01	13.94	8.41	...
45	8 p.	Naparima—Wellington Estate	1.46	2.41	0.32	7.30	8.00	10.20	8.71	5.92	4.38	3.68	10.88	6.15	...
56	5 p.	Naparima—Craignish Estate	1.74	3.17	...	5.49	6.08	10.02	11.41	8.20	5.48	3.95	14.48	8.86	...
47	8 e.	San Fernando—Lewisville	1.72	3.25	1.25	6.84	7.40	8.24	13.01	12.94	6.00	4.23	12.60	6.65	83.13
51	8 e.	Maraval—Police Station	1.90	2.62	0.94	5.34	13.90	9.05	16.46	21.93	10.27	10.23	8.64	12.64	114.58

APPENDIX III.—Continued.

RAINFALL FOR THE ISLAND OF TRINIDAD FOR THE YEAR ENDING 31st DECEMBER, 1893.—Continued.

No. of Station.	Diameter of Gauge, Govt. or Private.	STATION.	January.	Feb'y.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.	Total.
63	8 e.	Diego Martin—Police Station	1.80	1.00	0.78	3.68	9.22	7.34	13.22	11.94	13.00	8.77	7.16	8.06	85.92
64	8	Maracas Bay	3.75	2.80	3.52	8.20	8.68	7.85	22.11	16.87	15.16	13.29	16.34	18.47	137.24
65	8 e.	Maracas—Government School	0.70	1.49	1.04	3.69	8.61	...	13.75	8.32	7.63	7.13	10.36	10.72	...
67	8 e.	Blanchisseuse	3.41	3.26	2.51	5.64	13.59	8.51	14.63	7.98	5.82	7.15	12.68	19.82	104.80
68	8 e.	Cap-de-Ville	2.32	5.34	0.84	7.37	9.72	9.42	6.92	9.71	5.01	5.93	9.15	5.16	76.89
69	8	Valencia	3.22	5.04	1.85	5.02	19.60	12.20	11.84	6.36	12.82	5.50	8.28	18.31	168.54
70	8	La Brea	1.02	1.64	0.67	6.16	6.66	6.48	8.00	6.60	...	2.33	3.50	7.49	...
71	8	Hicacos—Constance Estate	...	5.23	1.90	6.45	6.87	10.42	4.43	7.63	4.62	10.00	8.42	7.60	...
72	8	Carapichaima	...	...	...	...	...	6.84	...	...	...	...	...	...	...
73	8	Nariva—The Cocal	...	...	...	...	...	...	...	...	...	...	...	...	...
74	8 e.	Manzanilla—Police Station	4.15	3.72	1.12	3.79	19.70	9.33	9.07	7.00	5.26	7.10	13.63	14.76	88.63
75	8 e.	Santa Cruz—Police Station	2.00	1.66	1.19	4.77	8.99	6.15	15.32	12.35	10.08	9.48	11.00	17.14	100.13
76	8	Conva—Brechin Castle Estate	1.42	1.18	0.59	6.26	9.65	8.71	9.80	11.49	8.56	10.81	9.15	5.10	82.53
77	8	Conva—Rivulet Estate	1.35	1.56	0.61	6.53	9.66	7.62	12.98	11.23	4.38	10.51	12.92	8.96	88.20
78	8	St. Helena Estate	...	...	...	...	...	...	...	...	...	...	...	...	...
79	8	La Plaisance Estate	1.47	2.15	0.44	...	...	...	...	...	...	4.03	...	...	...
80	8	Caroni—Curepe Estate	...	...	...	...	...	...	...	...	...	...	...	...	...
81	8	Caroni—McLeod Plain Estate	...	...	...	...	...	...	...	...	...	...	...	...	...
82	8	Caroni—Frederick Estate	0.96	1.15	0.18	2.84	13.10	10.14	12.50	9.38	7.85	9.10	12.16	6.79	86.15
83	8	Cedros—Beaulieu Estate	...	...	...	...	...	...	...	...	...	...	...	...	...
84	8	Siparia—Rest House	2.78	2.59	3.16	4.90	9.85	13.92	13.29	4.42	7.00	3.46	11.83	9.61	86.81
85	8	Gran Conva	...	...	...	...	...	...	...	...	...	...	...	...	...
86	8	Tacarigua—El Dorado Estate.	...	...	...	...	...	...	...	...	...	...	...	...	...
87	8	Carenage—Police Station	3.11	0.72	5.58	5.63	11.89	6.36	12.78	14.40	10.41	5.19	9.35	6.33	91.70
88	8	Guaipo—Adventure Estate	2.20	2.62	0.98	6.68	6.61	9.92	10.83	9.43	5.88	5.61	10.75	4.66	75.82
89	8	Princes Town—Fairfield Estate	1.35	...	...	...	...	...	...	...	...	...	...	...	...
90	8	Princes Town—Lothians Estate	2.05	0.35	1.91	2.44	8.46	9.66	16.11	9.11	4.26	5.37	16.75	9.44	85.91
91	8	Maraval Reservoir	2.43	3.32	0.73	5.38	17.13	10.28	16.84	17.21	14.98	10.76	13.68	13.90	126.64
92	8	St. Ann's Reservoir	2.56	1.96	0.48	3.98	11.52	10.51	13.79	15.68	10.07	7.64	6.67	7.55	92.41
93	8	Oropuche—Nelson Estate	1.16	1.84	0.82	4.51	5.58	8.65	4.14	7.56	3.67	2.68	7.22	5.03	51.75
94	8	Cedros—Perseverance Estate	3.06	1.26	1.71	6.85	3.80	3.85	3.22	5.56	2.79	1.91	4.36	7.78	46.17
95	8	Savonetta—Phoenix Park Estate	1.22	1.42	0.71	5.49	8.80	7.16	9.89	10.10	6.21	7.52	5.61	5.61	75.29
96	8	Gran Conva—La Gloria Estate	1.84	2.76	1.31	6.69	10.24	11.39	9.84	8.02	4.36	5.31	11.81	7.67	81.24
97	8	Dabadie	1.29	2.54	0.66	4.25	18.79	16.41	16.80	14.04	12.05	7.48	15.47	13.35	122.83
98	8	Unreppa—Mon Plaisir Estate	1.67	1.27	0.51	2.84	13.92	8.66	13.07	9.11	10.19	7.72	13.46	9.73	92.15
99	8	Aronca—Laurel Hill Estate	1.14	2.35	0.57	5.97	7.94	11.46	10.55	8.88	4.70	4.25	10.28	7.06	75.57
100	8	Naparima—Philippine Estate	...	...	...	...	...	...	...	...	...	...	...	...	...
101	8	Naparima—Corinth Estate	...	...	...	...	...	...	...	...	...	...	...	...	...
102	8	San Juan—Arajuquez Estate	1.46	2.21	0.36	2.42	8.92	7.30	12.75	6.67	7.94	6.21	6.12	6.21	68.57
103	8	Mucorapo—Woodbrook Estate	1.59	1.53	0.34	3.76	11.60	9.31	12.86	10.43	7.42	4.87	6.95	5.44	76.10
...	...	Monthly Average, and Mean for year all Stations	2.11	2.53	1.29	5.28	10.34	9.29	11.29	9.93	6.64	5.82	10.71	8.67	86.75

**APPENDIX III.—Continued.**  
**TRINIDAD—ROYAL BOTANIC GARDENS.**

**ANNUAL RAINFALL, 1862 TO 1893, 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 8 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	85-23	
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 6 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	7-52	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	5-37	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	7-33	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	1-37	2-03	3-65	8-04	9-45	10-32	7-53	6-67	6-86	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	

\*Average Annual Rainfall for 30 years—1862 to 1891  
Average to date or 32 years—1862 to 1893

= 65-91 inches.  
= 67-5 "

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