

HONGKONG.REPORT OF THE SUPERINTENDENT OF THE BOTANICAL AND AFFORESTATION
DEPARTMENT FOR 1889.

*Presented to the Legislative Council, by Command of His Excellency
the Officer Administering the Government.*

No. 5.

BOTANICAL AND AFFORESTATION DEPARTMENT,
HONGKONG, 22nd February, 1890.

SIR,—I have the honour to submit the Annual Departmental Report for 1889.

2. The routine work of the department occupies a very great deal of time in supervision and the past year has not shown any diminution of demands in this respect, the character of the raw Chinese recruits, as well as even the older hands, has, as usual, required the expenditure of much time in organisation, and development and maintenance of method and order in their work. The increase in the vote for the Gardens has permitted various improvements to be made in general appearance. Greater neatness in walks and lawns has largely contributed to the general effect. The Gardens have been extensively used by the Chinese especially, but there is some difficulty in inducing a large number of them to observe rules which should regulate the conduct of visitors. The summer storms have been again numerous and every one of them has caused more or less damage from the effects of either wind or excessive moisture in the soil. Many pot plants especially suffer from the drowned condition to which their roots are subjected during the heavy rains.

3. The terrible Rain Storm which began on the 29th of May and continued during the following day perfectly flooded the level and moderately level parts of the Gardens, and even on the portions with steep gradients the rainfall presented the appearance of cascades, the drains and channels being inadequate to carry off the immense volumes of water. Soil in open beds and borders and gravel on walks were swept away to a great extent. A portion of retaining wall 40 feet long by 10 feet high collapsed, and four landslips, besides the catastrophe in Glenealy Ravine, were caused. The bursting of the culvert in Glenealy Ravine within the New Gardens completely obliterated the lower portions of the grounds which I laid out and planted about seventeen years ago. Soil was washed away, together with trees and shrubs, to a depth of 10 or 12 feet in some parts and landslips on the precipitous heights around were large and numerous carrying away portions of the gallery walk and parapets together with vegetation which had grown and hidden the ugliness of the once bare staring faces of the fresh cuttings. The Public Works Department having replaced the soil carried away by the storm waters this department has now in hand ground work which will, I trust, be relaid out and planted in a short time. The excessive force of the downfall of the rain was exhibited after the storm by the appearance of vegetation of different kinds. The leaves of some trees were completely torn off, others had the leaves browned and blackened, while on some with leaves of a softer and more succulent character, but where the plants were somewhat sheltered from the full force of the rain, the leaves after being pounded by the rain hung in a decomposing state before the rains completely ceased. Small and tender seedlings were completely destroyed in many instances.

4. All landslips which occurred within the Gardens were removed, *débris* collected and carried away, walks repaired, and beds and borders put straight again in sixteen days after the storm, at which time the staff resumed their ordinary work. The mains, through which the Gardens' supply of water was conveyed having been carried away by the storm a great portion of the water needed for the Gardens had to be carried from the nullah until the end of October when connections were made which placed us again in a better position. The total cost of repairs to storm damages within the Gardens, exclusive of the work now going on in Glenealy Ravine, was \$618.66. The estimate and vote was \$800.

5. Landslips were numerous on the hills throughout the island, but they seem more plentiful on the northern slopes than elsewhere, probably owing to the greater steepness of the hills there. A considerable number of trees of all sizes were carried away by these slips. It seems probable that landslips may be partly prevented by the roots of the trees which strike deep into loose soil. In this manner plantations may perhaps be of service in assisting to keep roads clear by preventing landslips. Some of the most unsightly yellow earth exposed by landslips in plantations have been roughly turfed. In the tree nurseries, which, as a rule, are lands alternately used as paddy fields, a very large number of small seedling pine trees were completely destroyed by water or by their being covered with deposits of soil; these losses have greatly diminished the number of trees available for planting during the present season.

NEW BUILDINGS.

6. The new departmental buildings, in place of the present dilapidated structure, for which the money was voted in 1888, have not yet been commenced, but I trust that it may be found convenient for a beginning to be made with them during the current year.

BOTANIC GARDENS.

Plant Houses.

7. The wooden supports of the tables of the north house having been ant-eaten or rotten the tables have all been built up solid with brickwork. The roof has also been renewed and the wooden supports have been replaced with light iron work.

8. Similar work has also been effected in the central Fern-house.

9. The roofs and side sun screens have also to a great extent been replaced with new material which the Superintendent of the Gaol has kindly had made by the prisoners. This is a valuable service rendered by the Gaol Department, a service which it is difficult to get done elsewhere at a reasonable cost.

10. The glass roof of the old plant-house has been removed, in consequence of its decayed condition, and replaced with sun screens only.

11. Our minimum temperature in December, January and February is too cold for many plants which are attractively ornamental, but with a suitable glass-house, with the help of a little artificial heat, many interesting plants of this kind might be added to our collections.

12. An additional plant shed 30 feet by 9 feet has been erected in the nursery for the cultivation of sale plants.

13. The glass-house erected in the nursery two years ago has been of the greatest service in affording protection to a large number of plants propagated for sale to the public and for use for filling beds in the Gardens. Another house the same size as this one could be very well utilized now for the growth and protection in inclement weather of maiden-hair ferns and other decorative plants for which there is a considerable steady demand by the public, and which would in all likelihood be increased if the plants could be maintained in a little better condition than the provisional structures now permit. The structures in the nursery need many improvements and additions, but, pending the erection of the new offices, the improved nursery arrangements which may be considerably effected by the work must remain in abeyance.

Walks, Drains, and Channels.

14. The special vote which was liberally granted towards the end of the year enabled me to put the walks throughout the Gardens in a thorough state of good repair by laying down four inches of lime concrete on all the chief walks which, by reason of their gradients, were subject to continual scouring away, during rains, of the decomposed rock with which they were previously made. This condition of the walks will now prevent a great deal of the disorder of walks which has always inevitably prevailed until repairs could be effected after every moderately heavy rain. The total length of walks, varying from five feet to ten feet in width, which were concreted was 3,794 feet in the Botanic Gardens, and 569 feet in Government House grounds.

15. The brick channels on the sides of most of the walks in the Gardens have been put in a good state by repointing and relaying in places, where necessary.

16. A quantity of underground drains have also been attended to by cleaning them out and relaying, and improving sand pits which had been originally faulty in construction, or which had become so in some instances since they were made thirty years ago.

Water Service.

17. I have to thank the Public Works Department for a much improved service of water obtained from the Tytam Water Works and laid on to ten tanks distributed throughout the Old Gardens. To some of these hydrants are placed so that hoses can be fixed for irrigation work. I have also to acknowledge ready and kind assistance from the Fire Brigade Department in the arrangements of fittings for hoses which are now in good working order. What has been accomplished is of great service, but when a suitable opportunity presents itself I trust that the supply will be laid on to various other parts of the Gardens where water is needed but where at present there is none.

Flower Beds and Rockeries.

18. The flower beds have been, as usual, twice filled in most cases, and oftener in a few. The winter plants consist chiefly of annuals, which are planted in November and December and flower from January to April. The Chinese New Year flower, *Narcissus Tazetta*, is also used for beds and it flowers in January and February, the planting being done at different times in order to preserve a succession of flowers. In the winter months we have now an additional difficulty to contend with which is becoming more pronounced every year, I allude to the great increase of small birds which about the month of December and January, after the bedding plants have attained moderate dimensions, make continuous onslaughts on them, and unless the beds are netted over the birds denude the plants of all their leaves, consuming them for food. These netted beds have an unsightly appearance, but

the objectionable feature must be borne until the period when the birds are most ravenous is tided over. The Ordinance which specially provides for the preservation of small birds does not allow their destruction even when the birds have become so numerous in places and seasons as to be a nuisance.

19. The increase of birds which has succeeded the passing of the Birds Preservation Ordinance more than twenty years ago is an advantage in some ways and a pleasant change from the cheerless aspect of the Colony at that time when scarcely a bird could be seen, but the increase is not without its disadvantages.

20. After the annuals are over the beds are again filled for the summer season with flowering plants to a small extent, but chiefly with plants with coloured or ornamental foliage.

21. These arrangements demand and receive a great deal of attention. The summer arrangements of the past year were the best, probably, that have yet been accomplished.

22. The plants in the recently made rockeries at the north-east entrance have made good progress and the whole now presents a fairly attractive appearance.

Labelling.

23. Constant attention has been given in adding to the number of those labels put down as well as to the replacement of decayed labels or obliterated names. A little more requires to be done in perfecting the system, but, on the whole, this work may now be considered in good order.

Aviaries.

24. These are in good condition, but a few more birds are desirable, these I trust will be added during the course of this year. Birds and animals are a great attraction to visitors, especially to Chinese and children, but as it is not expedient to attempt a collection of animals in these Gardens the few we have will not be increased by the acceptance of further donations. On the other hand, however, I think a little extension of aviaries might be an advantage.

Summer Storms.

25. The very frequent storms and threatening storms during the rain season absorb a good deal of time in preparations to meet them so that possible damages should be prevented as much as can be. The preparations consist chiefly in removing plants in pots, from exposed places to sheltered positions, and in securing sun screens with which the roofs of plant houses are covered. These arrangements employ the greater part of the staff for a considerable time before, and after storms.

Collecting.

26. The administration and working of the department has absorbed the whole of my time and left none in which I could, without detriment to the department, absent myself for any purpose, therefore what collecting has been done has been accomplished by sending natives on short excursions to islands and the mainland within easy access from Hongkong. The results of these journeys have added plants of much interest to our collections of both living and dried plants, but excursions near home and when undertaken by natives are much less fruitful and unsatisfactory than expeditions made under European leadership, but in the absence of the latter native agency is better than none.

GOVERNMENT HOUSE AND MOUNTAIN LODGE GROUNDS.

27. The grounds on the plateau on the northern side of Government House which needed improvement were relaid out in the early part of the year. This involved a change in the levels, raising a considerable portion, the taking up and relaying of all the turf, the making of new beds and borders, the introduction of a new system of underground and surface drainage, removal and replanting of shrubs, &c., and the formation of new walks with cut granite edging stones as far as possible.

28. At Mountain Lodge the tennis lawn was extended sufficiently to allow of three courts being used at one time instead of two as before.

DISTRIBUTION AND INTERCHANGE OF PLANTS AND SEEDS.

29. Plants and seeds to the extent of 197 boxes, bags, and packets, weighing 16lbs., 459 specimens of dried plants, and 801 living plants were received in exchange. The following were the principal donors:—

Ashton, Captain, Formosa.
 Barton, J.
 Botanic Gardens, British Guiana.
 " " Saharanpur.
 " " Singapore.
 Botanical Department, Jamaica.
 Braga, F. X., Kobe, Japan.
 Bunting, J., Yokohama, Japan.
 Burnie, Captain
 Cooke, Mrs.
 Danmann & Co., Messrs., Italy.
 Faber, Rev. E., Shanghai.
 Forest Department, Penang.
 Layton, Hon. B.

Legge, Mrs.
 Leigh, R. K.
 Ming Lee Tsan.
 Poesnecker, Mrs.
 Poli, M. de, Paris.
 Royal Botanic Gardens, Ceylon.
 " " " Kew, London.
 " " " Mauritius.
 " " " Trinidad.
 Royal Palm Nurseries, U.S.A.
 Siemssen, G., Foochow.
 Smith, Mrs. A.
 Thomson, Captain, S.S. *Nanzing*.
 Veitch & Sons, Messrs. J., London.

30. In exchange and in donations there were distributed 111 boxes, bags, and packets of seeds weighing 78lbs., and 1,933 plants. The principal recipients were:—

Agri: Horticultural Society, Madras.
 Arthur, H., Formosa.
 Bain, Mrs. M.
 Barton, J.
 Botanic Gardens, Bombay.
 " " British Guiana.
 " " Natal.
 " " Saharanpur.
 " " Saigon.
 " " Singapore.
 Botanical Department, Jamaica.
 Bunting, J., Yokohama, Japan.
 Burnie, Captain
 Cook, Mrs.
 Dammann & Co., Messrs., Italy.
 Forest Department, Malacca.
 " " Penang.
 French Convent.
 Gardner, Captain
 Thomson,—St. Helens, Liverpool.
 Henderson, F.
 Hodgins, A. E.
 Humphreys, J. D.

Italian Convent.
 Kirkwood, M., Yokohama, Japan.
 Legge, Mrs.
 Martin, G. P., England.
 Olifent, Captain
 Piercy, G.
 Police Station, Hunghom.
 Queensland Acclimatisation Society, Brisbane.
 Romano, A. G.
 Royal Botanic Gardens, Calcutta.
 " " " Kew, London.
 " " " Mauritius.
 Royal Engineers Department.
 Seth, Mrs.
 Smith, K.C.M.G., H.E. Sir C. C., Singapore.
 Storer, R. E., Colonel
 Thomson, Captain, S.S. *Nanzing*.
 Thurston, K.C.M.G., H.E. Sir J. B., Fiji.
 Travers, A. K.
 Veitch & Sons, Messrs. J., London.
 Wilkinson, R. E., Major
 Yeatherd, Mrs.

SALE OF PLANTS AND TREES.

31. The sales have been continued to about the same extent as last year. The sum of \$343.38 was received for 3,143 plants and trees which were supplied to about 100 separate orders.

HERBARIUM.

32. The work of the year has consisted chiefly in preparing, mounting, and incorporating. The incorporation of specimens has not advanced, for want of time, so rapidly as could have been desired, but 705 specimens were placed in their final positions in the cabinets.

33. To Mr. W. T. THISELTON DYER, Director of the Royal Gardens, Kew, Monsieur DE POLI, Paris, and the Rev. ERNST FABER, Shanghai, thanks are due for contributions of valuable and interesting specimens.

34. Several collections of dried plants have been sent to the Royal Gardens, Kew, in exchange, and that institution has also again rendered most valuable service in the identification of a considerable number of specimens submitted to it for comparison and determination.

35. I may here mention that the elaboration at Kew of the Index Floræ Sinensis has been steadily pushed forward; the work has been completed to the Nat. Ord. Loganiaceæ.

36. The parts as published are put on record here and are available for reference to any one who desires to make use of them.

LIBRARY.

37. I have to thank various Botanical and Forestry establishments for Reports and Contributions received. The following are the chief contributions:—

Amaryllideæ, Baker. Purchased.
 Botanical Magazine, 1889. Do.
 Bulletin (Kew) of Mis. Information, presented by Director, Royal Gardens, Kew, 1889.
 Bulletin Nos. 10 and 11 Royal Botanic Gardens, Trinidad.
 Classified Catalogue of the Library of the Royal Botanic Gardens, Ceylon.
 Fern Allies, Baker. Purchased.
 Flora of British India Part XV., presented by the Royal Gardens, Kew.
 Gardeners' Chronicle, 1889. Purchased.
 Hooker's Icones Plantarum, Vol. IX., presented by the Bentham Trustees.
 Index to the Streets, Houses and Leased Lots of the City of Victoria, Hongkong. Purchased.

Journal of Botany, 1889. Purchased.
 Plantæ Davidianæ ex sinarum Imperio. Purchased.
 Proceedings of the Committee of Agri: Horticultural Society of Madras.
 Proceedings of the Central Agricultural Board of Trinidad in its Inauguration.
 Report, Acclimatisation Society of Queensland for 1888.
 " Botanic Gardens, Adelaide, 1888.
 " " " Ceylon, 1888.
 " " " Natal, 1888.
 " " " Saharanpur and Mussoorie, 1888.
 " " " Singapore, 1888.

Report on the Public Gardens and Plantations, Jamaica, 1888.
 „ on the Department of Agricultural, Cape-town, 1888-89.
 „ of the Agricultural Adviser, London, 1887 and 1888.
 „ of the Cinchona Plantation and Factory in Bengal, 1887-88.
 „ on the Destruction of Cocoa-nut Palms by Beetles, from Director Botanic Gardens, Singapore.
 „ on the Forest Department, Singapore, Penang and Malacca, 1888.
 „ Royal Botanic Gardens, Calcutta, 1887-88.
 „ Royal Botanic Gardens, Trinidad, 1888.
 Transactions of the Hongkong Medical Society. Purchased.

Indian Forest Reports.

Forest Administration in Assam, 1887-88.
 „ „ in Ajmere-Merwara, 1887-88.
 „ „ in the Andamans, 1887-88.
 „ „ in the Central Provinces, 1887-88.
 „ „ in Hyderabad, 1887-88 & 1888-89.
 „ „ in Madras, 1887-88.
 „ „ in the North West Provinces, 1887-88.
 On the Course of Instruction at the Forest School, Dehra Dun, 1887-88.

FORESTRY.

38. The planting operations have been, as customary, distributed over the greater portion of the Colony exclusive of the Cape D'Aguilar and Stanley peninsulas. The operations of preparing lands for the reception of seeds and trees began in August of 1888 and the last tree was planted on June 20th, 1889. There is no interval between the end of one planting season and the beginning of the next, as the selection of lands and making of contracts for the next season's work begins immediately that tree planting is finished. Actual planting began on November 14th, 1888 and, as stated above, was finished on June 20th, 1889, *i.e.*, it extended through a period of about six months, during which planting was done on 126 days. During the whole of the season the greatest care and foresight has to be constantly exercised in selecting suitable conditions of weather for insuring success in transplanting operations. The absence of rainfall and of water in streams on the hills at the time of year when trees are in the best condition for transplanting renders it necessary to distribute the planting over wide areas and in localities at great distances apart, so that trees may be planted at convenient distances for artificial watering from such scanty sources as may be available. This, and the fact that the very small bits of land suitable for nurseries are also scattered all over the island compels a system of desultory planting involving the expenditure of much time in superintendence and management which is not felt where natural conditions permit operations to be carried out on more circumscribed and concentrated plans. The yearly extension of lands brought within forestry management and the greater distances of works from head quarters does not diminish the strain experienced in maintaining or developing efficiency in all branches.

39. The work during the year under review has been very heavy and the staff generally has given much satisfaction in so far as their abilities and power went, but there is an insufficiency of educated and experienced assistance at my disposal for carrying out directions and plans of the extent and in the manner which is desirable. The Head Forester, LO AQWAI, has applied himself with diligence, faithfulness, and intelligence to the work, and he has given much satisfaction generally.

40. Owing to the Contractor who engaged to rear and supply pine trees having failed to produce the full number agreed upon it was not possible to plant so extensively as had been arranged for. The failure was apparently owing to the Contractor's ignorance of methods of cultivation, or carelessness of management. He failed to supply about two-thirds of the number stipulated for.

Pines Reared in situ.

41. A contract was made for 450,000 trees to be reared *in situ*, and of that number, the Contractor handed over a year after sowing, 429,238. He reported that soon after sowing the seeds small birds attacked and devoured them to a large extent. This seems to be the first year that birds have been noticed to do injury here to forest seeds or trees. At the end of the first year the seedling trees have attained a size varying from three to six inches in height, and from one to about a dozen seedlings in each site, the size and number being influenced by the quality of soil or exposure to wind, or to water collected on the hills in heavy rains and rushing over the sites; these agents being to a considerable extent the cause of many entire failures. The loss from these entire failures however is borne by the Contractor who is paid at the end of the first year for healthy trees only, the price paid being only about a fourth the cost of planting trees. After the *in situ* trees are taken over from the Contractor a small portion for a year or two will continue to die leaving the strongest to survive in the fittest places. Even with these losses the method has much to recommend it, in economy, over planting. To complete the plantations the gaps are filled up after the trees which have succeeded have grown and shown themselves sufficiently distinct from their surroundings, which is in about two or three years after the seeds were sown. The trees which are used for filling up vacancies are trans-

planted from nurseries in which they have been reared. Under the most favourable conditions plantations raised by sowing *in situ* are perfect, some of the older ones being without a break in their uniformity and never having been filled up.

Cryptomeria japonica.

42. About fourteen thousand of these were procured from Japan for planting in the catchwater area of the Pokfulam Reservoir. This was done, with the approval of the Sanitary Board, in order to vary the uniform gramineous vegetation of the hills for aesthetic effect, the *Cryptomeria* on account of its persistent leaves being considered the least likely to pollute the water with decaying vegetation. Many of the trees, some months after they were planted, were attacked and killed by white ants which completely destroyed the bark of the stems below ground. The same thing occurred to a few hundred trees planted for experiment in another locality near Aberdeen. The trees which were not attacked by termites have established themselves and grown well. This is a tree which should in common with most trees be planted before its annual growth begins, but which is unfortunately, also like other trees, in the dry season before the rains are of much benefit to them, and consequently the difficulty of planting the tree extensively is great by reason of scarcity of accessible water for artificial watering.

Camphors.

43. An experiment was tried of planting seedlings five months old when they were about four to six inches high so that they could be planted during June in the rain season and so diminish the cost of planting which attends older trees. The planting would be successful if the continuance of rain at short intervals for a month were assured, but the irregularity of showers leaves intervals of too much dryness which is prejudicial to tender seedlings where they cannot be artificially supplied with water. Of those, however, which were well established, a large number were attacked with *Cassytha filiformis*, a lauraceous parasite in the form of long thread-like stems which infests and lives upon living grass and other vegetation. In places, especially on the southern side of the island with dry, poor soil and hot aspects the parasite is very abundant amongst grass. It attached itself to the delicate stems of the camphors and extracted all the plants' juices for its own nutriment, the camphors having had to succumb to its oppressive neighbour.

44. The camphor in good soil, which however is a very rare commodity here, will thrive well in moderately sheltered situations up to an altitude of about 500 feet. The degree of altitude in this, as in some other cases in Hongkong, at which trees discontinue to thrive is not regulated by temperature (as might be supposed by the reference to altitude) as by exposure to concentrated and accumulated winds, decreased fertility and depth of soil, and diminution of water in suspension in the soil.

Tristania conferta.

45. About seventeen thousand were reared from seeds in pots and planted out in the Western District. They were planted at a higher elevation than the older trees which have done so well on lands bordering the eastern end of the city. The higher elevation will probably not be so favourable to growth as the lower one, but during the past year the trees have averaged about 2½ feet in new vertical growth, lateral branches having also been developed to a small extent. The tree, like its congener the *Eucalyptus*, both natives of Australia, has a habit of unusually great vertical development, but its aspect is more pleasing and its foliage, denser than the gum trees. The older trees have again yielded a good supply of seeds, which have been sown and have produced 25,000 seedlings.

Road Planting.

46. As soon as the formation of Lower Richmond Road was sufficiently advanced it was planted along its whole length with trees on one side, the road not being wide enough to permit of two rows being planted. Upper Richmond Road was planted in 1888. The planting of these two new roads has completed the planting of all the roads in that locality which are suitable for the introduction of trees.

47. Steps have also been taken for the planting of such of the new roads at Kowloon as it was considered advisable should be done this year.

48. Kowloon is now provided fairly well with trees, taking into consideration those in private grounds, those in Robinson Road—which I hope may be completed as soon as there is an opportunity—and those which this department has planted on the lands south and north of the rifle butts, and which have with their development so greatly changed the once sterile and treeless aspect of the hills to a scene of greater verdant beauty.

49. As a rule the older roads and streets of the Colony in or immediately adjacent to the city were not, apparently, laid out with consideration being given to the requirements of trees which were subsequently introduced when the inhabitants found how intolerable was the absence of trees in our

hot glaring tropical summers. The trees which were planted and maintained at great cost and with much care have developed in spite of the disadvantages of crippled space for growth of head and roots into objects of beauty which cast agreeable shade affording relief from the burning sun and intense glare and heat which was experienced before the introduction of trees. Many trees have yearly to be sacrificed to make room for extensions of buildings which, however, in many cases, provide in themselves a partial substitute for the trees. It is only necessary to picture what some streets and roads without trees would be to insure the most careful guardianship of what has been attained in spite of considerable difficulties. There may be some disadvantages which follow in the wake of trees, but the immense advantages will be generally considered to far outweigh them.

50. In places where land may not be too valuable for such a purpose it would be very desirable for the sake of further extension of tree planting in roads if it were possible that future new ones could be made of sufficient width to allow the possibility of a moderate regular development of the heads of the trees on all sides, instead of, as at present, extension on the side next buildings being so much restricted. The result of this one sidedness is that as trees develop chiefly on one side they are gradually dragged down by the weight of the head from an upright position to one inclining over the roadway, the incline in time becoming so great that for safety limbs have to be cut off and ultimately, in many cases, entire trees have to be removed.

Nurseries.

51. The Government possesses land for only one tree nursery in Hongkong. The many nurseries throughout the island in which trees for the Government are annually reared by contract are obtained by the Contractor from squatters on payment of rent for the one year during which the trees are grown in the nurseries. After the trees are taken from the nurseries the squatters resume the cultivation of rice and vegetables in the ground. Although this alternation of crops restores fertility to the soil, it only does so to a partial extent, never apparently returning all which the trees have taken out of the soil. The very limited amount of cultivable land, and the still smaller portions which squatters are willing to let to the Contractor has rendered it necessary to use the same ground over and over again during some years, this continual cropping with trees, and the somewhat meagre fertilizing agents used by the squatters in the intervals, have begun to affect the quality of nursery trees. It is difficult to remedy this under existing arrangements whereby the Government holds so little cultivable land of its own.

52. The rearing of certain trees in pots has necessitated the use, in addition to the one Government nursery, being made, for nursery purposes, of a portion of the Bowrington plantation, marked on maps as "Public Gardens." This name, adopted twenty years ago, is misleading, as the land was never a public garden in any sense, but in the first instance was thickly planted with forest trees only and to within the last few years it has been nothing but a plantation.

Planting Statistics.

53. The numbers and kinds of trees planted, and the localities in which they were placed are given in the appendix and on the accompanying map.* The numbers and localities have been given in former reports, but the map is furnished this year in addition in order to show approximately the positions of the plantations in compliance with instructions recently received. In the absence of suitable maps of the Colony and of facilities for laying down precise areas, which I have explained in another place, only roughly approximate indications on the map are practicable. The plots referred to are coloured vermilion and each one is marked with a letter of the alphabet, and the numbers of trees planted are marked by its side, corresponding letters and detailed figures being given in the table of statistics. This, although not so perfect as I could desire, will, I trust, meet that which is required. The statistics include trees planted in November and December, 1888, this being properly the beginning of the planting season of 1889.

Thinning Plantations and removal of Brushwood.

54. The thinning of plantations was confined to the few first months of the year, the usual work of the latter end of the season having been postponed to this year, therefore, the number of trees thinned was relatively small. At the present time something like 40,000 trees require removal for the benefit of the permanent ones.

55. Removal of brushwood or undergrowth has, as usual, been conducted throughout the year, this work now giving almost continuous employment to a gang of men. The work is generally performed not only at no expense to the Government but a small income is obtained derived from the sale of the brushwood. There are some exceptions to this such as where the undergrowth is not large enough to be of saleable value, in which cases the work is performed by the forestry staff in the intervals between other more important work.

56. Some alarm, which, from my experience, I cannot but regard as unnecessary, seems to have been allowed to have had some disturbing influence in some quarters in regard to what is called undergrowth. The origin of the alarm may have been associated with dense undergrowth which exists in other countries under conditions widely differing from those prevailing in Hongkong, what little there

* Not printed.

is of undergrowth here being connected with attendant evil effects of that of some other countries without making due allowances for circumstances here which counteract or reduce to a harmless minimum results injurious to health which are attendant on excessive vegetation under some certain conditions.

57. In tropical places where vegetation is extremely luxuriant and where the land on which it grows is comparatively flat and fertile there is often a mass of decaying vegetation which is undoubtedly injurious to animal life. In Hongkong, however, the soil is, as a rule, comparatively, and much of it excessively, sterile, and the configuration of the island is such that the excessive summer rainfall washes away most of the vegetable matter which has been separated by natural decay from shrubs or trees, and which therefore has no opportunity to lodge on the ground and in the process of decay produce an unhealthy atmosphere.

58. The vegetation of this region being of such a character that but little is shed periodically, and the hills of the island being so steep, there is rarely much accumulation of leafy matter which reaches the stage of unhealthy decay. The existence of healthy *living* trees, undergrowth, or scrub in themselves, will not, on due consideration being given to the subject, be blamed, when the chemical action of the leaves of plants is considered, for imparting an unhealthy character to a neighbourhood, but, so long as there is no undue accumulation of decaying vegetation, an abundance of trees and shrubs should be beneficial to the inhabitants so long as due circulation of air and admission of light is not impeded by them.

Ferrieries.

59. The ferrieries and rockeries which are maintained by the Government—there are some which were constructed at Government expense, but which are not maintained by them—have been kept in good order, but the great storm of May swept part of them away, these are being reconstructed and will be planted again this year. Their maintenance has been rather difficult on account of damages done by stray animals and passing traffic, in addition to which there have been many thefts to plants; it is impossible, on account of petty thefts to grow anything except the commonest of plants in the rockeries.

Protective Service.

60. The small band of Forest Guards has done its work fairly well, and damage and destruction of trees has been confined within narrow limits. Out of 47 cases brought before the Magistrates 40 convictions were obtained.

61. The raising of the rates of the Little Hongkong villagers, in consequence of the continued damage to trees immediately around the old village, has had a marked good effect, proving that the villagers possess the power, which they have been interested in exercising last year for the first time, of guarding the trees.

62. In January convictions for grass cutting ceased, and afterwards no arrests were made. This was in consequence of the presiding Magistrate in the last case having decided that there was no Ordinance under which punishments could be legally inflicted. Since that time grass cutters have been increasingly resuming their old practices, and besides the injury done by removal of grass where it was desirable it should remain, the excuse of being engaged in the avocation of grass cutting gives the people so employed the opportunity of cutting trees at the same time, and thus the work of protection is rendered more difficult and somewhat less perfect.

Grass Fires.

63. Throughout the dry season at the beginning and end of the year fires were numerous, there having been 15 in all. Six of these fires destroyed trees to the number of about 30,000 as near as could be ascertained. The largest quantity of trees destroyed was near Tytam Tuk where the destruction amounted to 16,000 and another one near Pokfulam killed 9,000. Of the 15 fires 9 did no damage to planted trees. The fire barriers—cleared tracks—again did great service in checking the fires.

64. The extinction of fires has given some arduous work to the staff which is always despatched when needed at any time of the day or night to extinguish them.

65. The Police have again rendered very valuable service in reporting, by telegraph, fires to me, and also in despatching their own staff with hired coolies to check the fires. Of the 15 fires 9 were reported by the Police, forest guards having also reported some of them. The Stanley and the Shau-kiwan Stations had in their districts the greatest number of fires, the west and northern parts of the island, having been nearly exempt, but the West Point and Aberdeen Police have rendered good service also. The out-stations have been kept supplied by this department with the requisites for fire extinction, and the remuneration to coolies employed has also been paid from the forestry funds.

Fire Barriers.

66. The barriers cleared in previous years were, before the beginning of the dry season, all inspected and recleared where necessary, and new ones made where required. The clearing was done by contract. At the present time the total length of barriers in use is about forty miles.

Services ex Departmental.

67. A contract was made on behalf of the Royal Engineers' Department for rearing and supplying plants of certain kinds required for various fortifications of the Colony. The contract extends over nearly two years, and this department undertook to organize the arrangements and supervise the Contractor during the period of the contract.

I have the honour to be,

Sir,

Your most obedient Servant,

CHARLES FORD,

Superintendent,

Botanical and Afforestation Department.

The Honourable

THE COLONIAL SECRETARY,

&c., &c., &c.

Appendix.

STATISTICS OF PLANTING OPERATIONS.

LOCALITY.	Localities Marked on Map.	DESCRIPTION AND NUMBER OF TREES AND AREA IN ACRES.							Grand Total of Trees.
		Pinus sinensis.	Camphor.	Crypto- meria japonica.	Cunning- hamia sinensis.	Bamboos.	Tristanea conferta.	Area.	
Pokfulam,.....	A	8,202	...	...	...	...	...	6 $\frac{3}{4}$ acres.	...
West Point,	B	15,035	...	2,436	...	...	17,161	28 $\frac{3}{4}$ "	...
Pokfulam,....	C	...	...	11,520	1,279	...	...	10 $\frac{1}{2}$ "	...
Mount Kellet,	D	31,089	...	...	...	...	...	25 $\frac{3}{4}$ "	...
Aberdeen,	E	...	3,381	...	...	...	...	2 $\frac{3}{4}$ "	...
	F	1,989	11,390	590	...	...	...	11 $\frac{1}{2}$ "	...
Sokunpo Hills,	G	14,107	...	...	...	...	...	11 $\frac{3}{4}$ "	...
Quarry Bay,	H	38,862	5,364	...	...	...	...	36 $\frac{3}{4}$ "	...
Taitam,	I	371,908	...	...	...	...	...	309 $\frac{3}{4}$ "	...
	J	44,556	...	...	...	...	...	37 "	...
	K	12,774	...	...	...	...	...	10 $\frac{1}{2}$ "	...
Hunghòm,	L	8,931	...	...	...	...	...	7 $\frac{1}{2}$ "	...
Government Civil Hospital,	...	...	...	...	...	67	...	...	...
Bowen Road, .....	...	...	...	...	...	76	...	...	...
Bowrington, .....	...	...	...	...	...	307	...	...	...
Albert Road,.....	...	...	...	...	...	147	...	...	...
West Point, .....	...	...	...	...	...	32	...	...	...
Peak Road, .....	...	...	...	...	...	8	...	...	...
		547,453	20,135	14,546	1,279	637	17,161	499 $\frac{1}{4}$ acres.	601,211

Area of New Plantations,..... 450 acres.

Area within Old Plantations which have been filled up, 50 "

CHARLES FORD,

Superintendent,

Botanical and Afforestation Department.

RETURN SHOWING THE NUMBER OF DEATHS REGISTERED DURING THE

CAUSES.	BRITISH AND FOREIGN COMMUNITY.			CHINESE COMMUNITY.										
				VICTORIA DISTRICT.										
				DIVISION.										
	Civil.	Army.	Navy.	Sokoupo.	Bowrington.	Wantsai.	Hawan.	Sheungwan.	Chungwan.	Táip'ingshan.	Saiyingpun.	Shektongtsui.	Kennedy-townd.	Harbour.
I.—General Diseases.														
Group A.,	37	10	2	18	1	12	120	12	82	518	76	5	5	25
„ B.,	12	7	7	2	...	9	...	1	66	11	21	...	...	7
„ C.,	4	1	...	...	...	...	1	...	1	...	4	...	...	1
„ D.,	6	...	...	...	...	...	...	...	10	2	...	...	...	...
II.—Local Diseases.														
The Nervous System,	21	...	2	14	6	11	400	8	407	253	80	5	3	25
The Circulatory System, ...	5	1	...	1	...	...	3	...	9	5	7	...	...	3
The Respiratory System, ...	22	1	1	15	7	43	49	13	100	360	83	4	2	58
The Digestive System,	22	2	...	2	...	3	31	1	5	25	13	1	...	5
The Urinary System,	6	...	...	...	...	...	...	...	2	...	...	...	...	...
Affections connected with Pregnancy, .....	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Affections connected with Parturition, .....	...	...	...	...	...	...	...	...	2	...	2	...	...	1
Affections consequent on Parturition, .....	...	...	...	1	...	1	...	...	9	3	4	...	...	3
The Skin, .....	...	...	...	...	...	...	2	...	5	...	...	...	...	...
III.—Morbid States and Processes,														
.....	...	...	...	2	...	1	5	6	130	107	9	1	...	5
IV.—Ill-defined & Unknown,														
.....	20	1	...	9	2	16	2	1	68	12	62	...	...	7
TOTAL, ALL CAUSES,...	155	23	12	64	16	96	613	42	896	1,296	362	16	10	140
I.—General Diseases.														
A.—Specific Febrile Diseases.														
Exanthemata.														
Small-Pox, .....	...	...	...	...	...	...	...	...	...	2	...	...	...	...
Measles, .....	...	3	...	1	...	1	...	...	2	2	2	...	...	1
Whooping Cough, .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Simple Continued Fever, ...	3	...	...	2	...	1	101	1	32	6	9	2	...	5
Enteric Fever,	1	...	1	...	...	...	...	...	1	...	...	...	...	...
Sporadic Cholera,	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Vomiting and Purging,	1	...	...	...	...	...	...	...	3	...	2	...	...	2
Dysentery,	8	1	...	2	...	3	5	...	10	139	10	...	...	4
Malarial.														
Fever, Intermittent, .....	...	...	1	7	...	3	5	4	12	316	20	...	3	3
„ Remittent,	19	6	...	2	1	4	8	2	9	9	27	2	2	4
Beri-Beri,	3	...	...	4	...	...	1	5	11	44	4	1	...	6
Septic.														
Puerperal Pyæmia, .....	...	...	...	...	...	...	...	...	...	...	1	...	...	...
„ Fever,	1	...	...	...	...	...	...	...	1	...	...	...	...	...
Venercal.														
Syphilis, .....	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Zoogenous.														
Hydrophobia, .....	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Total Group A,...	37	10	2	18	1	12	120	12	82	518	76	5	5	25

HONGKONG.

RETURNS OF BIRTHS AND DEATHS FOR THE YEAR 1889.

Presented to the Legislative Council, by Command of His Excellency the Officer Administering the Government.

RETURNS OF BIRTHS AND DEATHS FOR THE YEAR 1889.

DISTRICTS.	BRITISH AND FOREIGN COMMUNITY.						CHINESE.						GRAND TOTAL.				
	BIRTHS.			DEATHS.			BIRTHS.			DEATHS.			BIRTHS.	DEATHS.			
	Boys.	Girls.	Total.	Males.	Females.	Total.	Boys.	Girls.	Total.	Males.	Females.	Sex Unknown.			Total.		
Victoria,.....	89	88	177	132	54	186	681	596	1,277	2,068	1,481	2	3,551	1,454	3,787		
Kaulung,	2	2	4	1	...	1	47	22	69	299	203	3	505	73	506		
Shaukiwán, .....	...	...	...	1	...	1	57	45	102	120	75	...	195	102	196		
Aberdeen, .....	...	...	...	1	1	2	19	15	34	80	53	...	133	34	135		
Stauley, .....	...	...	...	...	...	...	9	11	20	9	14	...	23	20	23		
TOTAL,.....	91	90	181	135	55	190	813	689	1,502	2,576	1,826	5	4,407	1,683	4,597		
DEATHS. BRITISH & FOREIGN COMMUNITY.		DEATHS IN PUBLIC INSTITUTIONS.						ESTIMATED POPULATION.						Annual Birth-Rate per 1,000 for the Year.		Annual Death-Rate per 1,000 for the Year.	
Europeans, exclusive of Portuguese,...	57	<i>Of the Deaths in Victoria, there were in the—</i>						British and Foreign Community,.....						16.71		17.54	
Portuguese,	36	Italian Convent,						Chinese,.....						8.18		24.00	
Indians, &c.,	41	Asile de la Ste. Enfanee,...						Whole Population,						8.65		23.64	
Non-Residents,	56	Tung Wa Hospital,															
—	—	Alice Memorial Hospital,...															
TOTAL,.....	190	TOTAL,.....															