



SUPPLEMENT

To the HONGKONG GOVERNMENT GAZETTE of 14th July, 1888.

GOVERNMENT NOTIFICATION.—No. 326.

The following Report of the Superintendent of the Botanical and Afforestation Department for the year 1887, is published for general information.

By Command,

FREDERICK STEWART,
Colonial Secretary.

Colonial Secretary's Office, Hongkong, 14th July, 1888.

BOTANICAL AND AFFORESTATION DEPARTMENT,
HONGKONG, 13th April, 1888.

SIR,—I have the honour to submit the Annual Report on this Department for the year 1887.

ESTABLISHMENT.

There has only been one change amongst the officers and foremen. That change was the loss of the foreman in charge of the plant houses; he, unfortunately, died from the effects of a wound received while arresting a youth who was pilfering flowers. There were, however, as usual, a large number—16—of changes amongst the lower ranks. These frequent changes are a great inconvenience and drawback, but there will be no help for it while recruits have to be obtained from the only source which is now available.

A carpenter was added to the staff during the year, and the result has been very beneficial to the department.

BOTANIC GARDENS.

The general condition of the Gardens is kept up to as high a standard as possible with the means at my disposal, but, although the Colony is proud of its Gardens, there yet remains very much to be done in order to bring them up to a standard which would not be too much to expect being realised. When the estimates were submitted last year I had the honour to advert to this subject and to point out how improvements might be effected, but as the additional means could not be furnished I can only do the best with what is at my disposal and hope for better things in the future. As it is I regret that any attempt at improving Glenealy Ravine in the New Garden will again have to be postponed.

I fear too that some curtailments will have to be made in the arrangements for the propagation and growth of plants for sale to the public. The glass plant-house will also, I fear, scarcely stand through another year.

Fountain Terrace.

The re-arrangement of this terrace has been completed, and the beds have been planted with roses, so that now the whole of the terrace is a rose-garden. In addition to the improvements of new beds and relaying of the turf, an examination of the underground drainage showed it to be wholly defective, consequently a large quantity of the drains were removed and re-laid, and the curb stones and levels of walks were also taken up and re-arranged.

Thinning and removal of Trees.

This work has been continued whenever opportunities offered for effecting improvements.

Plant Houses.

An addition to these has been made by the erection of a Propagation House 50 feet long by 12 feet wide. Our own carpenter has been employed on this work whenever he could be spared. A portion of this house was obtained from Messrs. FOSTER and PEARSON, of Notts, England.

Fern Houses and Plant House.

The bamboo screens, of which the roofs and sides of these houses are composed, were all in a condition not calculated to carry them through another year, therefore a large quantity of new material has been manufactured in the Gaol for re-roofing the houses.

The space between the above two houses has been enclosed and furnished with specimens of ferns of species of large stature.

The three houses now form a continuous range 123 feet long.

Glass House.

This is in a very rotten state and will not, I fear, be able to stand a gale this year. If it should be blown down we may have to regret the loss of the plants it contains.

Fern Shed.

A structure about 50 feet long with bamboo screen roof, and wooden tables has been erected for the cultivation of ferns and shade plants for sale.

Seed Shed.

For some years a very perishable marshed has been used for the protection from rain, excessive sun-light, and ants, of delicate newly sown seeds. This shed has been replaced with a more permanent structure built of hard-wood, with one side of the ridge-roof glazed. Attacks on the seeds by ants have been circumvented by having the pedestals which support the tables resting in small masonry tanks for holding water.

Potting, Carpenters, and Soil Sheds.

All of these have been re-constructed with leaf matting and bamboos during the year. Means have never been available for them to be made of anything more substantial than bamboos and matting. These structures ought to be all made of substantial brickwork with tiled roofs as soon as sufficient money can be spared.

Rockerries.

The improvements at the North-East entrance gates which were recommended in 1886 have been carried out so far as the construction of the rockeries is concerned, and the planting of them is now being proceeded with.

Labelling of Plants.

A large number of new labels have been lettered and put down, besides many of the old ones having been renewed. I hope that the present year will see all the plants in the Gardens efficiently labelled. If funds were available for the purpose it would be more economical to label the plants with indestructible terra-cotta labels having the names enamelled and burnt in, in place of the perishable wooden labels at present in use.

Lawns.

The grass in many places, especially where it has been so much injured by the crowds of people who attended the *Al Fresco Fêtes* which have been held in the Gardens during the last two years, has become very thin. The lawns urgently need surface dressings of enriching composts, but the maintenance vote is insufficient to admit of this being done.

Flower Beds.

The soil in these needs changing, and the whole design of the arrangements of beds and walks on the lower terrace would be better altered, when great improvements could be effected. In these contemplated improvements I should like to effectually work in a fit erection for the accommodation of the Regimental Band at its weekly performances, instead of the unsuitable existing arrangements.

Aviaries.

The old structures in the northern part of the New Garden, which had become thoroughly dilapidated, and which were not very suitable for aviaries, have been demolished, and a new aviary in four divisions has been constructed near the bear house in the southern part of the Old Garden. The aviary faces the sun and has its back to the north, thus affording shelter to the occupants of the aviary from the cold winds of the dry season and the violent storms of the rainy one.

Al Fresco Fête.

Whatever good may be said for the objects of the Fête, and they were most worthy, which was held in the Gardens in November, it is generally admitted that the handing over of the Gardens to Committees who have little or no interest in the Gardens themselves, or at least very little interest compared with their great object in endeavouring to make the entertainments financial successes, have a most injurious effect on the Gardens. Although greater precautions were taken on the occasion of the last Fête to provide against injury to the Gardens, still a large amount of damage was inflicted, besides having the order and beauty of the Gardens upset for a considerable time before, and a very long time after the Fête.

Musical Performances.

By the kindness of the Colonel and Officers of the 2nd Northamptonshire Regiment visitors to the Gardens have been entertained with the performances of the Band in the Gardens once a week throughout the year, with a few exceptions owing to weather and other causes. The Band, as alluded to already, is in need of an appropriate Band Stand which should be a structure of a character in harmony with the Gardens. The Band Stand in the Gardens, which was generously presented by the Parsee community in 1866 has not been used for some years on account of its situation being unsuitable for music to be heard from it to the terraces below where visitors congregate and promenade; it is also too small to accommodate the number of men of which the band consists.

Sale of Plants.

The total number of plants sold was 1,267; they realised \$365.41. In 1886 the plants which were sold realised \$409.35, and the number sold was 1,918.

As the plants in the Gardens are now labelled to a sufficient extent to enable visitors to ascertain the name of any tree, shrub, or plant which is cultivated in the Gardens, I would take this opportunity of advising would-be purchasers to make their choice of plants from an inspection of the larger specimens throughout the Gardens which show better what purposes the plants are suitable for than the small specimens kept in stock for sale in the nursery, to which the public generally confine their attention.

Statue.

I regret to have to chronicle the loss of shrubs and trees of great beauty which had taken 20 years of fostering care to bring them to the condition they were in before their destruction in order to provide a site—which had been selected two or three years ago—for the erection of the statue which was placed in the Gardens towards the close of the year. The Gardens have not been benefited by the change which was made in them, nor yet does it appear that the statue itself has obtained a position which is the best that could have been desired for the exhibition of such a fine and costly work of art. In view of these disadvantages it is to be hoped that the removal of the statue may receive some consideration when the day arrives for it.

I might here submit that the interests of the Gardens should have a strong claim to be represented by special professional judgment when the introduction of foreign objects is contemplated. The site for the statue was selected by a body of gentlemen and approved by the Government without the knowledge of, or any reference for an opinion from, the Superintendent of the Gardens.

Teff (Eragrostis Abyssinica.)

This is a cereal indigenous to Abyssinia. It produces small seeds from which is obtained an excellent flour that is extensively used in Abyssinia as an article of food. The Director of the Royal Gardens, Kew, obtained from Abyssinia a quantity of seeds of it for distribution to Colonial and other gardens for experimental cultivation. This garden received some of the seeds; they were sown on March 10th, and germinated well, and the seedlings grew rapidly and ripened their seeds in the middle of July, that is, only four months elapsed from the sowing of the seeds to the harvesting of the crop; the yield was abundant. Seeds were distributed amongst native agriculturists and information on the nature of the cereal was given to them, but the recipients of the seeds do not seem to have done anything with them so far as I have been able to learn.

DISTRIBUTION AND INTERCHANGE OF PLANTS AND SEEDS.

Exchanges have been conducted as far as circumstances permitted. Two hundred and seventy-six packets and parcels of seeds, weighing fifty pounds, and one thousand four hundred and twenty-nine plants were received. One hundred and twenty-two packets and parcels of seeds, weighing seventy pounds, and one thousand six hundred and twenty-seven plants were distributed.

The following are the lists of recipients and donors of plants and seeds:—

Recipients.

Anderson, Colonel.
 Apçar, A. P.
 Armstrong, J. M.
 Bell-Irving, Mrs.
 Botanic Gardens, Adelaide.
 " " Bombay.
 " " Mauritius.
 " " Melbourne.
 " " Natal.
 " " Port Darwin.
 " " Queensland.
 " " Saharanpur, India.
 " " Saigon.
 " " Singapore.
 " " Tasmania.
 " " Townsville.
 Botanical Department, Jamaica.
 Burghignoli, Very Rev. Father.
 Cook, Mrs.
 Creagh, C. V.

Darby, W. F.
 Fisher, Dr.
 Forest Department, Penang.
 French Convent.
 Grant, J.
 Gardener, Captain.
 Government Civil Hospital.
 Grossmann, C. F.
 Henry, Rev. B. C., Canton.
 Humphreys, J. D.
 Italian Convent.
 Ladies' Recreation Club.
 Police Stations.
 Queensland Acclimatisation Society, Brisbane.
 Royal Botanic Garden, Calcutta.
 " " " Ceylon.
 " " " Kew, London.
 Schultz, Captain, Perak.
 Stone-Cutters' Island Powder Depôt.
 Veitch & Sons, Messrs. J., London.
 Vaucher, A. E.

<i>Donors.</i>	
Adams, Rev. J. S., Ningpo.	Cox, J. H.
Armstrong, J. M.	Cundall, C. H., Manila.
Botanic Gardens, Adelaide, South Australia.	Diercks, F., Hankow.
" " Brisbane.	Henry, Rev. B. C., Canton.
" " Jamaica.	Johnstone, D. A., Hoihow.
" " Mauritius.	Kneebone, Miss.
" " Melbourne.	Koch & Brunner, Messrs., Cebu.
" " Natal.	Livesey, J., Stone-Cutters' Island.
" " Penang.	MacGowan, Dr. D. J.
" " Port Darwin.	Roebelen, C.
" " Saharanpur.	Royal Botanic Gardens, Calcutta.
" " Singapore.	" " " Ceylon.
" " Townsville.	" " " Kew, London.
" " Trinidad.	" " " Palm Nurseries, U.S.A.
Cook, Mrs.	Schultz, Mrs., Perak.
Cooper, W. M., Ningpo.	Thurston, K.C.M.G., Sir J. B., Fiji.
	Veitch & Sons, Messrs. J., London.

HERBARIUM.

The facilities and accommodation not only for extending, but even for maintaining the collections of scientific dried plants are still lamentably deficient. We have now about reached the limit of possibility of progress unless the suggestions which I have made on several occasions be responded to. There are now large collections of plants put away which have been made, dried, and poisoned, and which cannot be mounted, labelled and incorporated with the general collections in cabinets until the additional accommodation for working at and storing the specimens is available."

As much attention as possible has been given to the herbarium demands whenever a little time could be obtained between other work. A considerable number of plants have been poisoned, and mounted by the clerk and office boy, and labelled and incorporated by myself, but there are large numbers which it has been impossible to overtake.

A collection of nearly 2,000 named specimens of chiefly Asiatic plants have been procured by purchase. Since they came into our possession they have all been poisoned to preserve them from damage or destruction by insects, and many of them have been mounted. Another large collection was obtained during a journey made by myself, with Chinese assistants, up the North and Lienchau Rivers in the Kwangtung Province. Duplicates of all these have been sent to Kew Gardens. They have not yet been examined and determined, so that I am not yet able to make a report on the species which were obtained.

Donations of dried plants have been received from the Rev. E. FABER, of Shanghai, amongst which were many species of Chinese plants which were not before in our herbarium.

BOTANICAL LECTURES.

When the Chinese Medical College was inaugurated last year I was invited to give the Botanical Lectures to the students. With the approval of the Government I consented to do this, and have continued since last October to deliver two lectures a week. The lectures have all been given after office hours. For the sake of the demonstrations it would have been more convenient to give the lectures during daylight, but this was found impracticable to work into the time table of the College. Botanical specimens to illustrate the lectures, have been supplied to the students from the Botanic Gardens.

Since the Herbarium has been provided with more suitable accommodation, the students have received their lectures twice a week in the Herbarium room instead of at the Medical College. By this arrangement the resources of the Herbarium have been readily available and of great assistance to the students. The students take great interest in the botanical lectures, and many of them give promise of capacities for making considerable acquirements in botanical science.

LIBRARY.

A copy of the *Chi Wu Ming*, a valuable work on Chinese Botany which is difficult to procure, was obtained from Peking, through the kind aid of the Registrar General's Department of this Colony, and of Dr. DUDGEON at Peking.

I have to thank the Indian Forest Department for sending regularly copies of its various Reports which have been received throughout the year, and also the Directors of the many Botanic Gardens in various colonies for Annual Reports.

To Mr. THISELTON DYER, Director of Kew Gardens, we are specially indebted for numerous copies of the "*Index Flore Sinensis*" of the various parts as they were published, and also for copies of "*Icones Plantarum*" and the "*Kew Bulletin*," the latter complete for the year 1887, the first year of its publication.

* Since the above was written I am very pleased to say that by some alterations in the departmental buildings very greatly improved accommodation has been provided by the Government, and work long delayed is now progressing satisfactorily.

The following is a list of receipts for the year :—

Botanical Magazine, 1887.					
Journal of Botany, 1887.					
Gardeners' Chronicle, 1887.					
Report, Royal Botanic Gardens, Calcutta, 1886.					
" " " Ceylon, 1886.					
" Botanic Gardens, Jamaica, 1886.					
" " " Mauritius, 1885.					
" " " Natal, 1886.					
" " " Saharanpur, 1886.					
" " " Singapore, 1886.					
" " " Agri-Horticultural Society, Madras, 1886.					
Report, Queensland Acclimatisation Society, 1886.					
" Forests, Straits Settlements, 1886.					
					Indian Forest Reports.
					Forest Administration in Assam, 1886-87.
					" " " Central Provinces, 1886-87.
					" " " Bengal, 1886-87.
					" " " Ajmere Merivara, 1885-86.
					" " " British Burma, 1885-86.
					" " " Coorg, 1885-86.
					" " " Madras, 1886-87.
					" " " North-West Provinces, 1885-86.
					" " " Andamans, 1885-86.
					" " " Hyderabad, 1886-87.
					" " Survey Branch, 1885-86.
					Review of Forest Administration in British India, 1885-86.

GOVERNMENT-HOUSE GARDENS.

The ordinary yearly routine work has been performed at the gardens appertaining to Government House, but besides the thinning of over-grown trees, of which a good deal has been done, no special works have been undertaken.

INVESTIGATION AND PLANT COLLECTING.

A journey was undertaken by myself in August along the North and Lienchau Rivers in the Kwangtung Province. Besides an extensive collection of dried plants for the herbarium about 800 living plants were brought back. These are chiefly plants of an ornamental character which are most desirable additions to cultivation. When these living plants have become established and grown they will, in many cases, be new objects of great beauty and interest in the gardens of this Colony. When the collections have been thoroughly examined, a work which will yet take some time, the scientific results of the tour will, I feel sure, be of considerable value and interest.

Besides the introduction of new living plants, and the acquisition of a large quantity of material for the herbarium and for the enrichment of science, I may mention another result which is important and of direct and immediate practical utility to the Forest Department. For several years I have endeavoured, in vain, to procure through Chinese and other sources seeds in quantity of the tree (*Cunninghamia sinensis*) which yields the timber, so called China fir, that is universally used here and in South China for all kinds of building, and many other purposes. While I was absent I found the tree growing abundantly about 100 miles North of Canton, and under circumstances which rendered it possible to procure seeds in quantities as were desirable. I made arrangements for seeds to be collected there when they were ripe and delivered in Hongkong. We have now a large quantity on hand, and experiments on a large scale will be made with the cultivation here of the tree during this year. The timber from this tree, if it be found to succeed here, will be of much more value than that of *Pinus sinensis*, the tree which hitherto we have planted very extensively.

FORESTRY.

After the reduction of planting works which took place in 1886, the number of trees dealt with in artificial reproduction during 1887 was again brought up to something nearer former work, but until the Forestry vote is again placed at the figure which was provided before its reduction last year, we cannot accomplish annual afforestation works to the same extent as formerly.

Roughly estimating the area of ground operated on by the number of trees planted at fairly regular distances apart we have about 312 acres as the area for 1887. 157,144 trees were reared in nurseries and planted on the hills. Planting as usual was commenced in December, and finished in April, which was somewhat earlier than in former years. Planting in the dry season can only be done in places where water is available for artificial irrigation. In other places we are entirely dependent on favourable weather. In all places the planting was very successful.

Nurseries.

Nine nurseries have been maintained. These were situated at Kowloon (two) Saiwan, North Point, Sokonpo, Deep Water Bay, Little Hongkong, Aberdeen and Pokfulam. From them the trees were carried to the various planting grounds ranging from Saiwan in the East, North Point in the North, Pokfulam in the West, and Deep Water Bay in the South of Hongkong, and north eastwards of Yaumati at Kowloon.

The trees reared in nurseries under contract have this year, as a rule, been very successfully managed by the contractor, they show a great improvement on the previous year's work in this respect.

Rearing Trees in Situ.

Trees reared *in situ* have been successful. The number thus treated was 217,738. They are situated on Mount Parker, and near Deep Water Bay.

The total number of trees planted and reared *in situ* was 374,882.

The following is a list of the trees planted and reared *in situ* :—

Pinus sinensis,	151,081
" " <i>in situ</i>	217,738
Eucalypti.	3,621
Bamboos,	1,864
Acacias,	197
Cocoa-nuts,	128
Miscellaneous,	253
	374,882

Broad-cast Sowing.

In addition to planting and rearing *in situ* some pieces of land were operated on by sowing seeds broad-cast without any preparation of the ground. In certain places the method promises to give good results at a very small cost, as already stated in my report for last year.

There is, however, a serious difficulty to contend with where this work has been done, it is, the operation of grass-cutters, who cut grass, and *the young seedling trees in it* not caring, or at the least not knowing about the existence of the young trees. Until we have more control over grass-cutters this method of rearing trees cannot be extensively carried out. Some experiments made four years ago of sowing seeds broad-cast have given very good results, there being now abundance of healthy trees about two feet high.

Cunninghamia sinensis.

As mentioned elsewhere a considerable quantity of seeds of this valuable Chinese tree have at last been obtained from a distant part of the Kwangtung province. The seeds are the first instalment for what I hope will be the establishment of successful plantations to supercede the common *Pinus sinensis*.

Camphor Trees.

In 1886 about 4,500 camphor trees were planted as an experiment. The success of the camphor in the Botanic and private gardens of the Colony gave promise of its succeeding on the hills when placed within plantations of the China pine which were sufficiently large to afford shelter from winds. In such plantations where the soil is somewhat better than the average soil the trees have succeeded beyond my expectations, but where the shelter and soil is inferior the trees have made but little progress. The general results, however, were such as to lead me to continue the experiment, therefore about 12,000 trees were reared in the nurseries for planting during the present season.

Pinus Massoniana.

A few pounds of seeds of this tree were procured from Japan, and sown *in situ* by the side of our native pine, but the seeds, unfortunately, germinated very badly, probably owing to their not having been sufficiently ripened or harvested in Japan. The germination of our own seeds on the ground was perfect. A fresh lot of seeds have been obtained for further experiment this year.

Tristania conferta.

In my report for last year I drew attention to this rapid growing tree of which 800 were planted four years ago. These trees are now about 20 feet high (some have reached 30 feet). They flowered and produced seeds in abundance during the year under report. Seeds were collected and sown, and an abundance of young trees have been obtained for planting this season. I have great hopes of this tree. From its rapid growth and large amount of leafage it should be a much better tree than most species of Eucalypti for this Colony.

Persea nanmu.

The specimen in the Botanic Gardens of this Chinese tree which was introduced from the Sze Chuen province has now reached 24 feet high and it is thoroughly established in its new home. As previously reported on, the wood which it yields is extremely valuable in China. A number of young plants were propagated from the tree and planted for experiment on a piece of land which was subsequently utilised for a portion of the new Tytam Water-Works before I had any opportunity of dealing with the trees. The result of the experiment was therefore lost in consequence of the destruction of the little trees. Last year another experiment was tried which it is to be hoped this time will have a chance of being undisturbed.

Thinning Plantations.

This work has been continued throughout the year in plantations which were sufficiently advanced. The thinnings have been disposed of by sale without difficulty. However extensively surplus wood may be produced there is no prospect of there ever being any difficulty in its disposal in this Colony.

Fire Barriers.

Grass fires during the dry season have always been numerous and extensive and besides burning the grass, which was of minor importance, the fires have in their progress naturally destroyed or damaged the small trees and shrubs which were on the ground, thus effectually preventing natural reproduction. The increase of fires and the rapid extension of plantations which required greater protection led me to devise a system of barriers to check the progress of fires. With the consent of the Government about 40 miles of these barriers were made before the dry season set in. The result has been even better than I anticipated. Besides a fire which occurred from a bonfire at the Jubilee celebrations, there were only two fires which spread beyond a very small extent, and these two did not extend over more than five acres of planted land. In the vicinity of roads, paths, and cemeteries a great number of burnt patches of grass have been seen where the fires had been arrested by the fire barriers. There is no doubt but that for the existence of the fire barriers the fires which were arrested would have spread to a very great extent and have destroyed immense quantities of trees. If these barriers are maintained, and other suitable precautions carefully observed, there is now hope of grass fires being reduced very much in area.

Protective Service.

An additional Forest Guard was placed on the staff in January. Forest offences do not seem to have increased during the year. The number of cases brought before the Magistrates by the Forest Guards was 27, that is 11 less than during the previous year. There is a great deal of trouble in keeping the guards up to their duty, in fact there is rarely any case instituted which is not done by pressure brought to bear on the guards by the Superintendent. This is not satisfactory, as the Forest Guards should be of a sufficiently high character to move themselves in matters instead of continually shirking their plain duty. This duty of continual surveillance of the guards is becoming more difficult and troublesome to perform as other duties increase and demand attention and time in so many other ways. There will, perceptibly, have to be some improvement in the protective service before long. I fear that we shall never get really effective Chinese guards, but the employment of efficient men would involve a greatly increased cost, however, the time may arrive when it will in the long run be real economy to incur this cost.

Ferneries.

The rockery in Glenealy Road near St. Paul's College, which I referred to in last year's report, has been constructed and is now partially planted. The older rockeries have been maintained in as good condition as circumstances would permit.

I have the honour to be,

Sir,

Your most obedient Servant.

CHARLES FORD,
Superintendent,
Botanical and Afforestation Department.