

昭和十八年

一月分報告書

別紙

植物園



(14)

Sdns. 4/2602

G 106

Memo

From

Syonan Botanical
Gardens,
Syonan-to.

Date, 3.2.03, 19

To
The Director,
Syonan Bot. Gdns.,
Mus. & Lib., S.

I forward herewith monthly
report of the Botanical Gardens
for January, 2603, in duplicate.

[Handwritten signature]

22/81/2

SYONAN BOTANICAL GARDENS.

Monthly Report for January, 2603.

1. Herbarium.

Che' Nur re-arranged 4039 specimens of the family Myrtaceae, placing all species within one genus in alphabetical order, and including together under each species specimens from Malaya and outside Malaya. This makes reference to specimens much simpler than the former arrangement according to Ridley's Flora, which is now subject to many corrections. Che' Nur also laid in 80 newly mounted specimens at their proper places in the herbarium. Che' Kiah mounted 110 specimens and dried 31 new specimens. Dr. Furtado named 175 specimens for Japanese visitors, mostly for a botany teacher now serving in the army; Mr. Holttum also named about 30 specimens.

2. Library.

933 books were cleaned. 106 books were returned from the Printing Office, where they have been bound (the books were sent for binding last May). The work was not done satisfactorily. In many cases the binders threw away covers and title pages which they were specially asked to retain, and no titles were printed on the spines of the books. 13 further books were sent for binding.

3. Dr. Furtado's botanical work.

Dr. Furtado continued his work on the rattans of the genus Calamus, completing descriptions of 12 more species and 3 varieties. He has now completed the account of 28 species out of about 70 in all. It is important that this work should be properly illustrated, and arrangements are being made for the Artist to make drawings, in the first place of the new species.

Dr. Furtado also conducted several Japanese officers round the Gardens. He continued to be responsible for purchase and distribution of rice.

4. Mr. Holttum's botanical work.

Mr. Holttum devoted the greater part of his time to the study of orchids, of which he is writing a semi-popular account. He studied and wrote accounts of the Collabium and Coelogyne groups, and began to deal with the large genus Dendrobium. In connection with this work he made detailed drawings of the flowers of a number of species, and Juraimi bin Samsuri (Label-printer) assisted by drawing the general habit of the plants. No illustrations have been published of many local orchids, and these drawings will be very useful. Mr. Holttum also continued his work on ferns, writing a general note on the Athyrium group, and a full account of the Blechnum group.

5. Potting Yard.

508 plants were potted or re-potted. 314 cuttings were made of plants needing propagation. The following seeds were sown; -Fisang Biji from Mr. Sato; 9 Nipa seeds from Mr. Sato; 1000 Parinarium corymbosum seeds from Mr. Sato; seeds of 12 kinds of Cannas. 48 plants were sent to the Plant House for display, and a similar number returned for re-potting. Owing to dry weather much time was spent in watering.

6. Plant House.

The pot plants were maintained as usual, routine manuring continuing as in former months; the ferns have made particularly good new growth. 247 new flowering plants were displayed on the steps, from the Chinese gardener's nursery, and 194 old plants returned.

7. Orchids.

27 new pollinations were made during the month. Of these, 7 failed; a proportion of the others will probably be sterile, but it is hoped that some useful seeds will result from the remainder. Seeds from 10 fruits were sown during the month; several were sterile, but one cross between the genera *Spathoglottis* and *Calanthe* gave good germination. This is of great interest, as no hybrid between these genera has yet been reported. Other new seeds sown are *Dendrobium veratrifolium* x *stratiotes*, *Arachnis Maggie Oei* x *Renanthera monachica* and *Arachnis Ishbel* x *Renanthera Storiei*. An *Aranda-Arachnis* cross may have a few good seeds. A seedling of *Arachnis Maingayi* x *Hookeriana* flowered for the first time, but is not so good as former seedlings of the same stock. Many *Dendrobium* and *Cattleya* plants were re-potted. Among the local orchids, many were re-conditioned, and several flowered; they were of considerable assistance to Mr. Holtum in his studies.

8. Work in the Gardens.

General. The weather was dry from the 7th onwards. This caused flowering of many plants, and others are in bud. It also meant more work in watering pot plants, and this was increased by the failure of the pumping-engine, which was taken to the Transport Centre for repair on the 13th and not returned by the end of the month. Men had to be employed nearly every day carrying water from the lake to the plant-houses and vegetable garden.

Lawn A - Grass cutting and weeding.

Lawn B - Grass cutting and weeding; large bed of *Barleria* and *Caesalpinia* pruned, and gaps in *Caesalpinia* filled with new plants.

Lawn C - Grass cutting and weeding.

Lawn D - Grass cutting and weeding. Many young trees dug and manured. One dead palm (*Cocos plumosa*) and one poor *Livistona chinensis* removed and new beds dug for increase in the collection of conifers. *Piptadenia corymbosa* (grown from seeds from Argentina) flowered and fruited for first time in the Gardens. *Calpurnia sylvatica* (from S. Africa) flowered for the first time in the Gardens.

Lawn E - Grass cutting and manuring. *Brya ebenus* flowering for first time (from West Indies). Several young trees dug and manured.

Lawn F - Grass cutting. Dead *Hymenaea* tree cut down, but not all sawn up (a very big tree).

Lawn G - Dell rockery, swept and tidied regularly. 15 new ferns, *Begonias*, *Caladium* and *Ixoras* planted in part of the rockery.

Lawn H - Grass cutting and weeding.

Lawn J - Grass cutting and weeding.

Lawn K - Grass cutting and weeding.

Lawn L - Grass cutting and weeding.

Lawn M - Ginger Rockery swept regularly.

Lawn N - Potting Yard (see separate report).

Lawn O - Grass cutting; weeding of paths and beds, and re-planting of small flowering plants as required. Many new small plants added to the beds above and below the new coral wall, some of them already flowering well. Warscewiczia coccinea flowering very well, a new plant added near the old one. Two more seedling Bougainvilleas flowered for the first time, but it is too early to say if they are worth keeping.

Lawn Q - Aroid Rockery, swept as required and weeded.

Lawns P & R - Vegetable gardens and tree nursery (see separate report).

Lawns S, U & V. - Gardens Jungle. The borders of the Jungle on either side of Maranta Avenue cleared of unnecessary young trees and other plants and made tidy. A large Pygaeum tree which fell near Cluny Road (damaged by shell) cut up and cleared away.

Lawn T - Grass cutting.

Lawn W - Grass cutting.

Lawn X - Grass cutting and weeding. Some of the Arundina orchids re-planted and all manured, also 6 new seedlings put out for trial.

Lawn Z - Grass cutting.

9. Special propagation.

The work of selecting Cannas and attempting to grow them free from disease continued, and it is hoped that two of the Gardens beds are now in satisfactory condition. A new approach to the problem has been made by planting seeds of 12 of the best varieties, which can be planted in disease-free ground; some of them may also be tried for disease resistance. This will not result in the maintenance of the old varieties of Cannas, but may produce some useful new ones. During the dry weather, Mr. Alphonso spent some time pollinating a number of Bougainvillea flowers, especially the variety Louis Wathen, which has never produced seeds. The dry weather is the only season when seeds are normally produced. This is the first time artificial pollination of Bougainvilleas has been carried out in the Gardens, previous seeds being from chance natural pollination.

10. Vegetable Gardens.

18 beds were re-conditioned and planted with different crops. Nothing special was done this month; general routine and maintenance work were carried out as usual.

Harvesting was more favourable than the preceding rainy month. 2 bunches of Bananas were harvested. There is a notable decrease in ripe Papayas.

In lawn R 15 Citrus sp. plants were planted. In vacant beds the following plants were planted:-

22 Sapium jamaicense
12 Lagerstroemia Loudonii

A deep trench was dug by the Banana area parallel to the fence in order to cut away pirate roots of both Arenga palms and Stereospermum trees.

All Citrus plants were manured again and some new growth was observed.

A new variety of Maize of good size cobs and seeds has resulted from careful selection. Many plants have produced entirely purple cobs; a few cobs have still different coloured seeds. It is hoped that the fourth generation will produce purple cobs on all plants.

Twelve gallons stock solution of Tobacco infusion were manufactured to combat plant pests in the vegetable plots and in the Gardens.

Some illustrations of new Brinjals and Sweet Potato were painted by Juraimi (Label printer).

Notes on Sweet Potato varieties were revised and increased as data is accumulated. Two more varieties have been found. It is hoped that the Gardens Department may collect all varieties that are growing in this island, and make a description of each variety, its productivity and other characters. A considerable series of comparative trials will be necessary to establish full data on all the varieties. Mr. Lange has done much useful and careful work in this connection during the past eight months.

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63 new painted labels were made and put out, some being replacements of old ones. 47 aluminium labels were made. Mr. Holtum checked some of the plants on lawns D and C, corrected the plans and arranged for new labels.

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3. Dr. Furtado's botanical work.

Dr. Furtado continued his work on the rattans of the genus Calamus native in Malai, and by the end of the month had completed descriptions of 48 species and varieties. The Artist has spent a little time making drawings of the new species; much more of this work needs to be done, and is essential if the best results of Dr. Furtado's work are to be realized.

4. Mr. Holtum's botanical work.

Mr. Holtum continued his work on orchids, completing his account of the large genus Dendrobium, both as regards native and cultivated species. He prepared drawings of about 30 species and hybrids. The junior Label Printer, Juraimi, also assisted in making drawings. Mr. Holtum also spent a little time continuing his work on ferns, dealing with the genus Nephrolepis.

5. Potting Yard.

296 plants were potted or re-potted. 110 cuttings were made. Marcots were made of the double pink Oleander (3) and Mischodon zeylanicum (3), a species of which only one tree exists in the Gardens. Seeds were planted of 6 kinds of Cannas and 7 kinds of Brinjals, and 96 of the seedlings transplanted. 57 palms and other plants were sent to the Plant House. 74 foliage plants of various kinds, selected by Mr. Satow, were sent to Government House, and 74 plants returned from Government House for re-potting. One large Grammatophyllum orchid was sent to Government House. 2 palms and 4 Begonias were sent to the Museum.

6. Plant House.

327 flowering plants were brought for display on the steps from the Chinese gardener's nursery, and 291 old plants returned. 4 plants of Arachnis Lowii (a large orchid) were planted in the border of the small plant house. Routine manuring and top-dressing of pot plants continued. A beginning was made with renewing the attaps on the roofs of the two ends of the Plant House.

7. Orchids.

The usual display of orchids was maintained in the Plant House. Epidendrum Stamfordianum (from West Indies) flowered for the first time; this should be a useful species in Malai. New hybrid seeds of 12 kinds were planted in sterile flasks; three of these were Spathoglottis hybrids of the second or third generation and are mostly sterile. Of the others, the most

interesting are *Paphiopedilum lawrenceanum* x *niveum*, *Arachnis Ishbel* x *Vanda luzonica*, and *Dendrobium stratiotes* x *veratrifolium*. Crosses between different varieties of *Arundina* were also sown, with the object of producing better races of these useful bedding plants. Many new pollinations were made, of which a proportion were successful. Records of failures are kept, by which we are learning something about future possibilities. Of the local orchids, many species of *Dendrobium* and *Bria* flowered during the month, and were useful to Mr. Holtum in his studies. The local orchids in Potting Yard and Plant House are regularly overhauled.

8. General work in the Gardens.

The pumping engine was returned after repair at the Transport Centre on the 18th of February, after being out of action since Jan. 13th. During this period much time was spent carrying water for the plant house pots. Heavy rain (9.9 inches during the 9th to 11th) also held up garden work.

Lawn A - Grass cut. Canna beds weeded, dressed with lime and fertilizer.

Lawn B - As lawn A. One Canna bed burnt. The two beds previously burnt and re-planted with Cannas are in good condition. A good flowering of Bougainvilleas followed the dry weather of January. Bamboos were placed to allow one *B. Cypheri* to climb on to a Tembusu tree.

Lawn C - Grass cut. Newly planted shrubs growing satisfactorily.

Lawn D - Grass cut. Work of digging and manuring young trees and shrubs in this area completed. Three new conifers planted: one *Libocedrus macrolepis* var. *formosana* and two variegated Cupresses from Japan.

Lawn E - Grass cut. *Brownea macrophylla* flowered very fully for the first time. A *Saraca* from Borneo flowered for the first time, and is identified as *S. palembanica*. A young tree of *Eugenia malaccensis* var. *Jambu Susu* planted (seedling from old tree on lawn J).

Lawn F - Grass cut. A young tree of *Cassia fistula* planted by the lake side.

Lawn G - Dell swept regularly and weeded; some fertilizer applied to new planting; two young plants of *Ixora congesta* put out.

Lake - Silt at the head of the lake removed; this work not finished.

Lawn H - Grass cut.

Lawn J - Grass cut. Two plants of Tree Cotton (? *Gossypium brasiliense*) planted. One *Delonix regia* planted on the Sundial Terrace to take the place of the old one which had to be removed.

Lawn K - Grass cut; weeding round palm trees.

Lawn L - Grass cut. A thicket round the *Plectocomia* clump by the office cleaned of weeds, tree seedlings etc.

Lawn M - Two climbers on the roof of the Plant House flowered very finely; *Beaumontia Murtoni* (Siam) and *Arrabidaea rotundata* (T. America).

Lawn N - Potting Yard: see separate report. The carpenter completed a new wooden framework for the glass on one side of the lower glass-house; this house still needs the other side treated similarly, and the upper house also needs attention.

Lawn O - Grass cut. Flower beds maintained as usual. A young tree of pale pink Lagerstroemia was pruned of all leafy shoots on Dec. 1st, as an experiment, and began to flower on Feb. 11th. As soon as the flowering is completed the pruning will be repeated; if the same result follows, it should be possible to make such trees flower three times a year instead of once in 9 months as at present.

Lawn P - Vegetable Gardens (separate report).

Lawn Q - Aroid rockery; swept and weeded as necessary. Shrubs of Aranthemum nervosum under the Terminalia subspathulata tree removed to the edge of the jungle on the other side of the road, and replaced by Aglaonema and Begonia plants, so as not to hide the buttresses at the base of the tree.

Lawn R - Vegetable garden and tree nursery: see separate report.

Lawn S - Part of Gardens Jungle. No work needed.

Lawn T - Grass cut. A fallen Kurrimia tree cut up.

Lawns U & V - Garden Jungle. Fertilizer applied to part of the jungle where tree growth is poor to see what response may follow.

Lawn W - Grass cut.

Lawn X - Grass cut; weeding round palms; two young plants of the Betel nut palm (Areca catchu) planted, as the only trees of this kind are old.

Lawn Y - Vegetable Garden: see separate report.

Lawn Z - Grass cut.

9. Special Propagation.

The propagation of Cannas from seed continued, and a number of seedlings were potted off. Six more seedling Bougainvilleas flowered, but none of these were good enough to be worth keeping. Hand pollination of Bougainvilleas, made during dry weather in January, failed to produce any seeds; more will be attempted. Towards the end of the month a start was made in grafting some of the weaker varieties of Hibiscus on stocks which have been prepared; this work will continue, and further trials in grafting Bougainvilleas are intended.

10. Vegetable Gardens.

Many beds were re-conditioned and planted out with the following crops:-

4 beds of Long Bean	2 beds of Keladi
4 " " Cucumber	1 bed of Kachang Sabelangah (Mucuna)
4 " " Ladies' Fingers	1 " " Snake Gourd
4 " " Chew Choy Sam	1 " " Kangkong
4 " " Brinjal (various)	1 " " Chillie
4 " " Sweet Potato	1 " " Ground-nut
2 " " Maize	1 " " Chekop Manis
2 " " Bayam	

In general the harvest was satisfactory for the month. Three large bunches of Bananas and 18 Papaya fruits were cropped.

Two large heaps of compost were manufactured in order to maintain the vegetable plots' stock of organic matter.

Six gallons of Tobacco infusion (stock solution) were prepared to combat plant pests in the Gardens.

Manuring of the Citrus plants once a fortnight has been proved to be beneficial. The Ground-nuts, previously reported to have been planted as a catch crop as well as leguminous cover crop to new Papaya plants in lawn R, have been lifted with good yield - the green matter was dug in as manure.

In lawn R the following interesting plants were planted in vacant vegetable beds:-

8 plants *Dacrydium elatum*
12 " *Cratoxylon formosum* (small leaves)
1 plant Citrus from Belawan-Deli.

Manuring, pruning and staking of other young trees in this area was carried out.

Notes on Sweet Potato manurial experiments were compiled. A second series of the same manurial experiments was started, in order to confirm the first results.

Trials of a nitrogenous manure with different application dates from planting have been started on a number of beds. This experiment is designed to find out the manurial value of nitrogen as applied at different stages of the plant's development so that we may know the best time to start manuring.

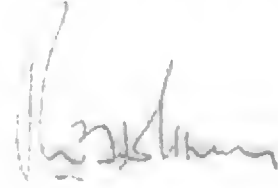
An experiment to compare the manurial value of unrotted organic matter as against rotted compost was started, with Maize as the experimental crop.

Additional notes on Yam Beans were recorded.

The third generation of purple Maize seeds were planted. A second generation of Japanese long cucumbers are vigorous and producing excellent fruits.

II. Labelling and Indexing of Plants.

The label printers made 88 painted labels, and 12 standard aluminium labels, as well as numerous hanging aluminium labels. They also prepared 50 wooden labels for re-use, and painted 50 white labels for Mr. Satow. Mr. Lange began to check the plan of lawn Z and will continue this work in the afternoons, as Mr. Livingston has not enough spare time for the purpose.



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(16) - 500 4/2102

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Memo

From

Date, 5.4.03, 19

Syonan Botanical
Gardens.

To
The Director,

Syonan-to.

Syonan Bot. Gdns.,
Mus. & Lib., S.

I forward herewith monthly report of the Botanical Gardens for March, 2603, in duplicate.

B2/43/1

Monthly Report for March, 2603.

1. Herbarium.

Che' Mohd. Nur re-arranged 3596 specimens of the families Melastomaceae, Lythraceae, Samydaceae, Passifloraceae, Cucurbitaceae, Begoniaceae, Araliaceae, Cornaceae, Caprifoliaceae and Rubiaceae and inserted 32 mounted specimens in the General Herbarium.

Kiah mounted 102 specimens and dried 10 specimens. He also inspected the spirit collections in 13 cupboards.

2. Library.

Books in the Library were cleaned in rotation as usual.

3. Labelling & Indexing of Plants.

75 painted labels for plants were made, and 6 standard aluminium labels; also 124 hanging aluminium labels. The Label printer painted 130 new label-boards with white background for Japanese labels, and 30 standard labels with black background. The Junior Label printer (Juraimi bin Samsuri) was employed almost throughout the month assisting Mr. Corner in making coloured drawings of fungi.

The plan of Lawn 2 (containing over 350 trees) was checked by Mr. Lange, and fully written up with plant names; the cards also were checked and lawn numbers added. A list of plants lacking labels was made; these labels will be made as soon as possible.

4. Mr. Holttum's botanical work.

Mr. Holttum continued his study of Malayan orchids, completing the genus *Aria* (59 species), preparing a key to the sections of the genus, keys for all sections, and brief descriptions of all species. Work on the large and difficult genus *Bulbophyllum* was also begun, and drawings prepared of various orchids which happened to be in flower during the month.

5. Mr. Corner's botanical work.

Mr. Corner devoted most of his time (except as mentioned below) to the study of fungi, of which he collected a large number during the month. He made paintings of many of these and made notes on those not previously described.

Messrs. Corner, Holttum and Furtado also spent a considerable amount of time in working on Mr. Satow's list of Economic Plants (prepared from Burkill's Dictionary), re-arranging the list under families and uses, and selecting plants suitable for cultivation in different localities.

Dr. Furtado also arranged for rice permits, and purchased and distributed rice for the Gardens staff.

6. Dr. Furtado's botanical work.

Dr. Furtado continued his work on the rattans of the genus *Calamus*, and discovered two more new species, represented by incomplete material, which he has provisionally described and allotted to their positions; this work has necessitated the revision of the descriptions of allied species and modifications

of keys to the species. Mr. Chan York Chye, the Artist, made drawings of 3 species of Calamus. There are a large number more to be done, and it is most desirable that Mr. York Chye should have more time for this work, which needs much skill, care and knowledge. No other person can do this work.

7. Potting Yard.

438 plants were potted or re-potted. 372 cuttings were made for propagation of plants of which the stock is low. About 100 Canna seedlings and 135 Brinjal seedlings were potted. Seeds were sown of Portulaca from Japan (from Dr. Koriba), Aegle marmelos (Bel-fruit) from Marquis Tokugawa, and Bougainvillea hybrids (65 seeds). 58 foliage plants were sent to the Plant House, and 55 plants received from the Plant House for re-potting. 11 vegetable plants were potted for a demonstration by Mr. Satow and 5 packets of seeds also supplied. The attap roof of one shed was renewed.

8. Plant House.

305 new flowering plants from the Chinese Gardener's nursery were displayed on the steps, and 297 old plants returned. In the small Plant House the orchids Peristeria elata and Arachnis Lowii were planted in the outer border in sheltered places, and some more large Begonias also. The usual maintenance of the stock of foliage pot-plants continued. The attaps on the roof of both ends of the house were renewed.

9. General work in the Gardens.

Lawn A - Grass cut, Canna beds weeded, limed and manured; Crinum beds and Medychium beds also weeded and manured. One Canna bed burnt and re-planted.

Lawn B - Grass cut. Canna beds limed, manured and weeded. The two beds which were burnt are in good condition. Clerodendron bed near the Main Gate pruned, weeded and manured. Bougainvillea Lord Willingdon flowered fully for the first time and is very fine.

Lawn C - Grass cut. A thicket of Resam fern near the Araucarias cleared, and new cover planted round them. One new Araucaria excelsa, propagated from a cutting, planted to fill a gap in the row. One Dacrydium elatum and one Talauma Candollei planted. The border along the Cluny Road boundary cleared of some climbing plants and tree seedlings which were smothering other plants.

Lawn D - Grass cut. A poorly grown tree of Millingtonia hortensis well dug and new drainage made for the roots. Two plants of Stachytarpheta mutabilis planted. The Hibiscus beds near the Office all weeded and manured.

Lawn E - Grass cut. One young tree of Brownea grandiceps, pink variety (of which only one exists in the Gardens) planted. The Sun Rockery weeded regularly and new plants added. The scarlet Zephyranthes cardinalis hybrid has flowered very well.

Lawn F - Grass cut. An Angsana tree transplanted from the nursery on lawn K to take the place of the large Hymenaea which died recently. This Angsana tree was raised from a cutting of one of the large trees by Anderson Bridge which escaped the disease which killed many of these trees in the town 20 years ago.

Lawn G & the Lake. The Dell swept and weeded weekly. The thicket of Montrichardia (tall Aroid) at the head of the lake cleared, and the adjacent bed of the lake dredged of silt which had

washed through from Tyersall during the last few months. Some old unsightly *Nymphaea* plants cleared away, and the banks of the island made tidy. The water coming in from Tyersall is now clean, and the Lake is in much better condition than for some time past. The *Dracaena* and *Acalypha* border by the Tyersall Avenue boundary cleaned.

Lawn H - Grass cut. A vigorous young 30 ft. tree of *Hibiscus macrophyllus* much leaning over tied back with wires, and some large leaves of a *Raphia* palm cut to make head-room for the *Hibiscus*. The stump of a *Waringia* tree which fell last year made tidy.

Lawn J - Grass cut. An old *Sterculia* tree in bad condition removed, and a thicket of undergrowth round it. A dying tree of *Araucaria Cookii* removed. The thicket of suckers from an old *Poinciana* tree on the Sundial terrace cleared.

Lawns K & L - Grass cut, and weeding as necessary.

Lawn M - See separate report on Plant House.

Lawn N - See separate report on Potting Yard.

Lawn O - Most of the beds weeded and manured. The *Canna* beds re-planted. The flower border round the bandstand re-planted, and the young hedge pruned. All paths weeded and the edges trimmed.

Lawns P & R - See report on Vegetable Gardens.

Lawn Q - Aroid rockery weeded and swept by the Potting Yard staff.

Lawns S, U & V - (Gardens Jungle). No work this month.

Lawn T - The orchid garden (of climbing *Vandas*, *Arachnis* etc.) partly weeded, and the plants re-staked. Grass cut.

Lawn W - Grass cut.

Lawn X - Grass cut; some palms weeded.

Lawn Z - Grass cut. *Sapindus saponarius*, the Soap berry of the West Indies, fruited; and *Caryocar villosum* (Butter nut) produced a good crop of young fruit.

10. Work outside the Gardens.

An average of 5 men per working day went to the Museum to assist in special work there. The Carpenter and Mason and another man spent some time in Tyersall repairing the roof of one of the huts.

11. Orchids.

The collection of local orchids was given attention and provided useful material for Mr. Holttum's studies. The display of flowering plants (hybrids) was maintained as usual in the Plant House, the dry weather of January and February having effect in producing an increase in flowering. 67 new pollinations were made, of which a number are apparently successful. A number of ripe fruits were gathered but only 5 had good seeds; four of these are in the *Arachnis-Vanda* group, all being hybrids of the second generation.

12. Hibiscus collection.

Mr. Alphonso has checked over the plants with the list, and has added descriptions of several newer varieties which had not previously been recorded.

13. Vegetable Gardens.

Many new beds were re-made, some on ground formerly occupied by pathways. New planting was as follows:-

8 beds each of the following:	Keladi and Sweet Potato.
6 " " " " " "	: Long Bean and Cucumber.
4 " " " " " "	: Brinjal, Maize and Bayam.
3 " " " " " "	: Lesser Yam, Bendi and Brassica.
2 " " " " " "	: French Bean.
1 bed " " " " " "	: Momordica and Snake Gourd.

The harvest continued to be satisfactory; there was a large crop of Papayas, and bunches of Bananas were harvested.

Two heaps of compost were made and 8 gallons stock solution Tobacco infusion prepared to combat plant pests in the vegetable plots and in the garden.

Two experiments on Sweet Potato were started:

(1) The practice of Sweet Potato planting adopted in Japan as against the practice usually adopted by the Botanic Gardens. The former was supervised and planted by Dr. Koriba.

(2) Sweet Potato planting material and cultural treatment as in Japan, against planting material and cultural treatment usual in the Gardens. Both the beds were treated as they would have been in Japan.

The above two experiments were conducted with a view of finding in:-

Experiment (1) - which manurial treatment will give the greater yield

Experiment (2) - which choice of planting material and cultural treatment will give the greater yield.

Observations and additional notes have been compiled on experiments with Potatoes, Maize and Yam Beans.

An experiment is in progress to discover the increase in bulk of Yam-bean tubers between the time of first die-back and the time of second die-back, all flowers being removed to prevent the formation of seeds.

There is also an experiment on Keladi China: planting in a deep trench as against planting on flat.

In lawn R where a nursery for interesting trees have been established 21 Casuarina sumatrana, 20 Andira, 6 Podocarpus and 6 Millettia were removed by Mr. Satow for planting elsewhere.

The Dacrydium elatum and Burkillanthus malaccensis, both shade-loving plants, were found yellowing.

Some nitrogencous manuring and a heavy grass mulch round the roots was necessary.

The Gossypium sp. (Tree-Cotton) flowered in the middle of the month, three months after transplanting from pots.

Six new varieties of Cotton from the Philippines were introduced and sown in boxes primarily to discover the viability and percentage of germination of the seeds. The germination percentage was excellent but after a few days most of the seedlings succumbed to a damping off disease, owing to unusually wet weather. However, a few plants of each variety are to be retained.

Specimens of various leaf-crops were collected from the Gardens' vegetable plots and provided for mounting to the Municipal Agricultural Department.

Bot. Mus. 4/26/03

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Memo

From

Date,, 19 .

To 4.5.03

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Syonan Botanical
Gardens,
.....

.....
The Director,
Syonan Bot. Gdns.,
Mus. & Lib., S.
.....

I forward herewith monthly report of the Botanical Gardens for April, 2603, in duplicate.

Dr. Koriba,

Please see attached monthly Report for April, 2603.

Handled.
4/5/03

B2/F4/1

(17) in 52, 4/21/27

SYONAN BOTANICAL GARDENS.

Monthly Report for April, 2603.

1. Herbarium.

Che' Mohd. Nur re-arranged 3092 Rubiaceae specimens and inserted 110 newly mounted specimens in the general herbarium.

Che' Kiah mounted 167 specimens and dried 20 specimens.

2. Dr. Furtado's report on his work.

I was able to draft the descriptions of species of rattans only and give instructions to Mr. York Chye for making drawings of 8 species. Mr. York Chye completed during the month all the 8 drawings.

Miscellaneous: I went thrice to Katong to name plants for the Army at the former St. Patrick's School ground. From time to time I took round the Gardens some Nipponese officials.

A week was spent by Che' Nur and myself in preparing the Census, required by the Police, of the persons living in the Gardens and in Napier, Cluny and Lermitt Roads and on Cluny Hill and in Cluny Park.

Some time was spent in bringing rice permit and rice and in distributing rice, sugar etc. to the Gardens' staff. Che' Abdul Wahab assisted me in preparing the new sugar cards and in bringing sugar, and Che' Ahmad bin Hassan in distributing sugar, rice etc.

I also made inspection of the Tyersall ground and saved some zinc sheets, nails, wires etc. for the Gardens.

Tambi Manikam varnished 145 books and looked after the cleaning of the shelves in the library.

I inserted 35 books in the library and wrote their index cards. I assisted Prof. Koriba in teaching Nippon-Go to the Gardens' Staff.

3. Labelling and recording of plants.

48 new painted wooden labels were made, and 40 old labels re-painted. About 130 aluminium labels were made for lawn O and Plant Houses. 14 sign-boards were painted. Mr. Lange completed the survey of lawn Z, and labels were made for a number of trees there which had lost them. Mr. Lange then proceeded to lawns A, B and C, which he checked with the plans and cards, making corrections and new entries as necessary.

4. Mr. Holttum's botanical work.

Mr. Holttum devoted nearly all his spare time to his work on orchids. Apart from making notes and drawings of various plants which flowered during the month, Mr. Holttum studied the genus *Bullophyllum*, of which 124 species are known to exist in Malaya (the largest orchid genus in our flora), preparing descriptions of all species and keys to all groups and species. This work was not quite finished at the end of the month.

5. Mr. Corner's botanical work.

Mr. Corner spent most of his time in continuing his study of fungi, especially the family Clavariaceae.

6. Potting Yard.

395 plants were re-potted; also 38 Bougainvillea seedlings, 16 Canna seedlings and 23 Musa seedlings (Pisang Biji). 484 cuttings were planted and 3 marcots made. 15 Begonia plants were sent to the Plant House. 6 palms of Licuala grandis were sent to Government House.

7. Plant House.

297 new flowering plants from the Chinese Gardener's nursery were placed on the steps, and 340 old plants removed. Several new Rhododendron seedlings and 3 more Arachnis Lowii were planted in prepared places in the border round the small Plant House. 64 plants (chiefly palms) were lent for decoration of the Town Hall on the 4th of April.

8. Orchids.

The new hybrids flowered during the month, namely Vanda Dearei x Vanda Miss Joaquim, and Vanda Hookeriana x Aerides odoratum. Both are interesting, though not of great value decoratively; they may however be very useful for further breeding, especially the second.

46 new pollinations were made during the month. 6 fruits ripened during the month and seeds were sown, but the majority were not fertile. One Epidendrum hybrid only gave good germination. Several flasks of seedlings were planted out into pots.

The local orchids in the Potting Yard and Plant Houses continued to receive attention and were useful to Mr. Holtum in his work on this family.

9. General Work in the Gardens.

Note. An average of 8 men per working day were taken for work at the Museum. In addition, a considerable amount of work was done in Tyersall Estate, repairing huts to be used and stacking material from demolished huts. Consequently the amount of labour available for work in the Gardens, apart from grass-cutting and the special work of vegetables, potting yard, plant houses, and nurseries, has been very limited, and very little work has been done.

Lawn A - Grass cut. Canna beds weeded once. 84 Canna seedlings planted as an experiment in the large bed.

Lawn B - Grass cut. Canna beds weeded once. Drains by Main Gate Road cleaned. One Canna bed re-planted after burning.

Lawn C - Grass cut.

Lawn D - Grass cut. Weeding, cultivation and manuring of Hibiscus beds completed. Other beds near office weeded.

Lawns E to K - Grass cut. The Dell (G) swept and made tidy once a week.

Lawn L - Grass cut. Thicket of ferns cleared. Lodoicea palms weeded and manured, and also two young trees.

Lawns M & N - Plant Houses and Potting Yard.

Lawn O - Grass cut. Beds and borders maintained as usual. Gaps in the new dwarf hedge round the bandstand filled by new planting. Gladiolus bulbs planted in 3 beds, after being rested. The Lagerstroemia tree which flowered in

February and March pruned experimentally to find out whether it will flower always after pruning.

Lawns P & R - Vegetable garden and tree nursery. General Saito planted a memorial tree of Dryobalanops aromatica on the 20th. A tree of Stereopermum in the avenue between lawns P and R (planted in 1937) flowered for the first time.

Lawn Q - (Aroid rockery) swept weekly and weeded occasionally.

Lawns S, U & V - (Gardens Jungle) no work.

Lawns T, X & W - Grass cut.

Lawn Z - Grass cut. The border by the Palm Valley Road, which contains about 30 interesting young trees, planted in 1937 and 1938 by Mr. Corner from seeds collected by him, was carefully cleared of some older trees of common kinds which are now smothering the young trees. A number of unwanted self-planted tree seedlings were also removed. The young trees are nearly all making good growth and should now develop more rapidly.

10. Vegetable Gardens.

Many beds were formed and the following crops established:-

- 8 beds of Sweet Potatoes (various races);
- 4 " " the following: Long Bean, Maize, Brinjal, Bendi & Cucumber;
- 3 " " Bayam;
- 2 " " Pachyrrhizus erosus (Yam Bean);
- 1 bed " the following: Shallot, Kangkong, Groundnut & Chilli.

In the Nursery a number of beds grown with certain miscellaneous shrubs have been cleared, re-cultivated, reformed and various Keladis established, care has been exercised to retain specimen plants of the shrubs removed.

Harvesting continued to be satisfactory throughout the month. 63 Papayas and 6 bunches of different Bananas cropped.

8 gallons stock solution of Tobacco infusion was prepared to combat plant-pests, and 2 large heaps of compost manufactured by the slurry method in order to maintain the organic matter in the vegetable beds.

Many seeds were collected; there were 3 new types of Brinjals which were illustrated by Mr. Juraimi.

The various experiments under trial are progressing satisfactorily.

In lawn R, where a nursery for interesting trees has been established, 6 Cotton plants of each of the varieties Stone Bill, Torais, Express, Fanno, Strawbags and Bantangas White have been planted in vacant beds. The plants are herbaceous annuals and reputed to be good yielders in the Philippine Islands.

3 Castor Oil plants of each of the following countries Djawa, Thailand, Indo-China and Manshukoku have also been planted.

The Grape-fruit plants had their young leaves defoliated by caterpillars, but prompt insecticidal measures prevented greater damage. The Italian limes flowered but did not set fruit;

probably due to rain. The Japanese Citrus seedlings have made the most rapid growth during the year and are now very vigorous.

The various memorial trees had an application of N.P.K. in solution. A few trees had mealy bugs attacking the growing tips: this disturbance was however checked.

A small plot in this lawn previously exhibiting several Sweet Potato races has been re-conditioned and now planted with 3 varieties of Lesser Yam of excellent yielding qualities.

The Hibiscus manihot grown by Dr. Koriba for the purpose of obtaining mucilage is now in bloom, a little over 2 months from sowing. As a matter of horticultural interest some crosses were made with Hibiscus esculentus (Bendi).

A bed of selected purple Maize seeds are producing large-sized cobs. It has been observed that the cobs increase in size after each generation. The present plants are in the 4th generation.

A few marcots of fairly old branches of *Cratoxylon formosum* have been prepared. It is hoped thereby to obtain dwarf flowering trees. It might also be possible to encourage freer flowering by repeated prunings combined by artificial defoliation.

① 18 May 1903

T

MEMOR.

From

The Director,

Syonan Museum, Library &

Botanic Gardens, S. 5.6.03.

I forward herewith monthly report of the Botanical Gardens for May, 2603, in duplicate.

Syonan Bot. Gardens,
Syonan-to.

B2/FS/i

(18A) in Sdn. 4/2603

SYONAN BOTANICAL GARDENS

Monthly Report for May, 2603.

1. Herbarium.

Che' Mohd. Nur re-arranged 2893 specimens of the family Rubiaceae, and inserted 134 newly mounted specimens in the herbarium.

Che' Kiah mounted 95 specimens, mended 223 specimens of the herbarium of cultivated plants and dried 20 specimens.

2. Dr. Furtado's report on his work.

Mr. York Chye prepared under my direction 5 plates of 3 species of Calamus.

I drafted three descriptions of Calamus species, two of which are new, of the latter one being from Borneo.

With the assistance of Che' Nur I determined 275 specimens for Nipponese officials. Of these 131 were specimens of ~~the~~ plants the leaves of which are used by the Indonesians as vegetables. In this case I had to give the name of the plant family to which the specimens belong, where they are distributed by cultivation or otherwise, and what parts are eaten and how.

Miscellaneous: I conducted Nipponese Pharmacists four times round the Gardens, showing them medicinal and poisonous plants. Sometimes they were also interested in looking up the literature we have on the plants.

Che' Abdul Wahab helped me to bring sugar, white rice, flour, oil, etc. and their permits were brought by me. Rice was distributed twice to the coolies and others of our staff, while the other commodities were distributed only once. The quantities of oil and soap received are insufficient to meet the requirements of our coolies who cannot afford to buy these commodities at the black market price. We received oil and soap much less than the men would have obtained had they registered themselves outside. I assisted Prof. Kohoriba in teaching Nippon-go and conducted classes twice a week.

3. Labelling and Recording of Plants.

The junior Label Printer (Juraimi) was transferred to the Museum from the beginning of the month. A new man (Karuppiah) was engaged, but was much absent and finally left. For this reason fewer labels were made during the month. 45 new labels were made and 40 old labels re-painted. 40 standard aluminium labels were renewed, and 118 hanging aluminium labels made. 10 sign-boards and 120 new wooden labels were painted white for writing Japanese names and notices. Mr. Lange revised the maps of lawns E and F, making corrections as necessary, and arranging for new labelling. Mr. Lange also recorded the new planting for the month.

4. Mr. Holttum's Botanical work.

Mr. Holttum continued his work on orchids. He studied and prepared draft descriptions of three small groups of genera (groups of Agrostophyllum, Appendicula and Cymbidium), including about 50 species in all, preparing new keys for the identification of local species. He also wrote an account of the Cattleya group, for horticultural purposes, and made drawings of several more local orchids and hybrids.

5. Mr. Corner's Botanical Work.

Mr. Corner continued his work on fungi. In company with Dr. Koriba, he also collected 45 species of seaweeds of which specimens have been prepared to add to the alga herbarium.

6. Potting Yard.

348 plants were potted or re-potted, and also 18 *Canna* seedlings. 500 cuttings were planted, including 250 of *Ficus callicarpa* from Bukit Timah. 350 seeds of Royal Palm were planted. 18 Aroids and ferns were sent to the Plant House. 2 *Juniperus bermudiana* were supplied to replace old plants on the Plant House steps. 57 tree-seedlings were sent for planting on lawn H (tree nursery). 13 plants were sent to Government House, and 3 orchid re-fixed to supports for Government House.

7. Plant House.

231 new plants were brought from the Chinese gardener's nursery for display on the steps and 244 old plants returned. Two plants of *Juniperus bermudiana* in large pots on the steps were removed as they had become too old, and replaced by new plants. The plants in the Plant House were maintained as usual. About 50 plants of *Anthurium* were re-potted.

8. Orchids.

The usual display of flowering orchid plants was maintained in the Plant House. No new hybrids flowered during the month. 42 new pollinations were made, of which about half have failed. 12 new collections of seeds were sown, including the following very interesting crosses: *Spatheglossis plicata* x *Calanthe veratrifolia*, *Dendrobium Wilhelm Stuber* x *Constance*, *Romanttherella histrionica* x *Saccolabium minimum* and *Epidendrum Stanfordianum* x *obrienanum*. The local orchids have been regularly inspected and treated as necessary; a few plants flowered and were named.

9. General work in Gardens.

An average of more than 7 men per working day were employed at the Museum. This continued absence of part of the gardens staff for more than 3 months has resulted in considerable arrears of weeding, and the Garden is growing more and more untidy.

Grass cutting has also suffered from the absence of men on leave and delays due to changes of staff.

Lawns A & B - *Canna* and other beds were weeded. A plant or one of the newly selected *Bougainvillea* seedlings planted, and also a large *Juniperus bermudiana* from the Plant House steps.

Lawn E - A tree of *Cassia spectabilis* pruned to give more room for *Sarcococa indica*. Various beds, and the Sun Rockery, weeded.

Lawn H - One Coconut seedling (yellow variety) planted.

Lawn I - The old Waringin tree near the Director's house pruned to lighten one of the large branches which is in danger of falling over the orchid benches which it shades.

Lawn O - All paths and beds weeded; more *Gladiolus* bulbs planted; the borders by the new coral wall weeded.

Other work. All lawns had grass cut, and were swept twice a week as usual.

10. Special Propagation.

Mr. Alphonse continued experimental budding of Hibiscus. Mr. Lange prepared Lantana stocks for budding with L. sellowiana.

11. Vegetable Gardens. (Report by Mr. Lange).

Many beds were re-conditioned for the reception of the following crops:-

8 beds of Long bean, Cucumber, Sweet Potato
5 " " Bendi and Brinjals
3 " " Maize, Kangkong, Bayam
2 " " Brassica. Chillies
1 bed " Dioscorea bulbifera and Snake Gourd.

The harvest continued to be satisfactory. Several bunches of Bananas and many Papayas were cropped. Daily supply to various officers of the department was maintained as usual.

Nine gallons stock solution of Tobacco infusion was prepared to combat plant pests in the vegetable plots and round the Gardens.

One large heap of compost was manufactured. It has been decided to green-manure more extensively with easily available grass clippings.

In the Nursery most of the different varieties of Keiadiis kept for observation and study have been removed to a new site with a view to observing the rotation principle. More crops of edible starchy tubers (Sweet Potato and Tapioca) have been established because the best part of this locality is sandy loam, unsuitable for leaf or fruit crops, but excellent for the production of maximum tuber development.

In lawn P, the new Papaya area was green-manured and the Citrus plants received a dressing of complete artificial fertilizer.

The tree-cotton plants out grew their size in a limited space which made it necessary to drastically cut back six trees to allow additional room for development and also to facilitate control of pests.

The following plants were established in vacant beds:-

26 Hydnocarpus
12 Cratoxylon formosum
6 Banana seedlings (seeds were obtained from Mr. Satow).

After the cropping of many excellent Bananas bunches which resulted in soil impoverishment, it became necessary to manure liberally the existing clumps in lawn R.

Plants of Hibiscus manihot, which Dr. Koribe planted for the purpose of obtaining mucilage, have produced seeds. The plants failed to develop fully as in temperate climates. They, however, may be used to advantage in an ornamental border because of their dwarf form and large yellow flowers. Seeds of Hibiscus manihot x Hibiscus esculentus have been sown.

Experimental work in progress.

The 6 varieties of cotton introduced from the Philippine Islands are in bloom, 2½ months from sowing: the tree-cotton plants have produced ripe pods of cotton 6 months from transplanting. Work has started on crossing the 6 kinds of herbaceous

annuals with the woody perennial tree-cotton. It is desired to raise progeny of hybrid-vigour, i.e., in particular a general improvement of plant constitution in resistance to plant pests and disease, increase in yields and possibly to secure fairly good cotton in spite of frequent wet weather.

An experiment in mass selection for purple maize has now reached the fifth generation. At the second and third generations the plants were self-pollinated to ensure a certain degree of inbreeding; after that natural cross-pollination among the plants in each bed were permitted, and a mixture of purple seeds from different plants selected. In this way a fairly pure purple strain has been established, which retains the vigour liable to be lost in the isolation of pure lines.

Two further experiments on Pachyrhizus (Yam Bean) are being started to determine:-

- (a) whether a reasonably good yield of tubers are obtainable if harvesting be practised immediately the flowers appear;
- (b) the possibility of harvesting profitably young pods for consumption and subsequently gather a harvest without appreciable loss of weight in tuber yield.

These two experiments complete a series of 8 and will give expression to many facts hitherto unpublished in vegetable gardening books.

42 various vegetable packets have been introduced by Dr. Koriba from Kyotu Takii Nursery Company, Japan. These sets are for trial in the vegetable plots with a view to selecting new vegetables which will thrive in local conditions.

Horticultural Work.

Work has commenced on securing standard 2½' Lantana sellowiana plants by bud-graft operation. For this purpose Lantana camara stocks have been planted. It should be noted that Lantana sellowiana is free-flowering and prostrate; the operation will effect a pendulous purple flowering standard plant.

Similarly it is desired to raise standard Petrea volubilis on Petrea rugosa stock.

Revision of Lawn Maps.

Plans of Lawns E and F have been reviewed for location of new planting, destroyed plants, corrections, and a general survey in bringing them up-to-date.

Res. J. H. M. 4.6.43

SYDNEY BOTANICAL GARDENS

Monthly Report for Jan. 1903.

1. Herbarium.

Che' Mohd. Nur re-arranged 2893 specimens of the family Rubiaceae, and inserted 134 newly mounted specimens in the herbarium.

Che' Kian mounted 95 specimens, mended 223 specimens of the herbarium of cultivated plants and dried 20 specimens.

2. Dr. Friado's report on his work.

Mr. York Chye prepared under my direction 5 plates of 3 species of Calamus.

I drafted three descriptions of Calamus species, two of which are new, of the latter one being from Borneo.

With the assistance of Che' Nur I determined 275 specimens for Nipponese officials. Of these 131 were specimens of the plants the leaves of which are used by the Indonesians as vegetables. In this case I had to give the name of the plant family to which the specimens belong, where they are distributed by cultivation or otherwise, and what parts are eaten and how.

Miscellaneous: I conducted Nipponese Pharmacists four times round the Gardens, showing them medicinal and poisonous plants. Sometimes they were also interested in looking up the literature we have on the plants.

Che' Abdul Wahab helped me to bring sugar, white rice, flour, oil, etc. and their permits were brought by me. Rice was distributed twice to the coolies and others of our staff, while the other commodities were distributed only once. The quantities of oil and soap received are insufficient to meet the requirements of our coolies who cannot afford to buy these commodities at the black market price. We received oil and soap much less than the men would have obtained had they registered themselves outside. I assisted Prof. Kohoriba in teaching Nippon-go and conducted classes twice a week.

3. Labelling and recording of plants.

The junior label printer (Jurnal) was transferred to the Museum from the beginning of the month. A new man (Karuppiah) was engaged, but was much absent and finally left. For this reason fewer labels were made during the month. 45 new labels were made and 40 old labels re-painted. 40 standard aluminium labels were renewed, and 113 hanging aluminium labels made. 10 sign-boards and 120 new wooden labels were painted white for writing Japanese names and notices. Mr. Lange revised the maps of lawns I and F, making corrections as necessary, and arranging for new labelling. Mr. Lange also recorded the new planting for the month.

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Mr. Holttum continued his work on orchids. He studied and prepared draft descriptions of three small groups of genera (groups of Agrostophyllum, Appendicula and Cymbidium), including about 50 species in all, preparing new keys for the identification of local species. He also wrote an account of the Cattleya group, for horticultural purposes, and made drawings of several more local orchids and hybrids.

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Revision of lawn maps.

Plans of lawns A and B have been revised for location of new planting, destroyed plants, corrections, and a general survey in bringing them up-to-date.

R. J. H. 4.6.43



昭南植物園月報

(昭和十六年五月分)

暗葉室

本月中に三八九三本の標本を再整理セリ。標本を再整理セリ。百三十四新しき標本を製成シ、標本棚に納入スル。

植物栽培場

二百四十八盆鉢植を採取替へて復舊白セシを
五百本植物の切取枝を植う。此の切取枝の中に
二百五十本は檳榔。一昨年「檳榔」及び
三百五十本の檳榔を植う。十八本の「檳榔」と
羊齒科を陳列所ト移す。

陳列場

又百廿一新しき植物を此の場の階段の上ト
置る。夫々の「Cycas revoluta」は過ぐ年久しく
因て此處移セリ。

本月中研究事件左の通り。

(一) 蘭花類 混種

Phajoloba pinnatifida (Desf.) de Vries (交配す)
Phajoloba willdenowii (Blume) de Vries
Phajoloba pinnatifida (Desf.) de Vries
Phajoloba pinnatifida (Desf.) de Vries

(二) 菌類

此の事業を尚進行中
三種の菌類。研究中に
種は新しき物を発見す。此の中に
一種は「*Phajoloba pinnatifida*」の産あり。

(三) 藤種

實驗事件

- (一) 芝生
- (二) 野菜果物の收穫増加法
- (三) 殺虫劑用の法
- (四) 混合肥の製作
- (五) 芋の産育観察
- (六) 沙島産量増加法

雜項

本月中に郡場園長と園内職員は四十五種
海藻を採集す。研究家フタド日本人
長の為二百七十五種植物標本の
書。

和文で植物名識物標本の書寫を尚
進行中。

園内芝生は教正然なり
本月園植為園案内記の販賣人
此の以知は市展納科へ入る。

海
草

- ✓ Bargassum
- ✓ Tapioca 木薯
- ✓ Aroid
- ✓ Rubiaceae 地蘇木科 ? オホキ又タサウ
- ✓ Calamus 藤屬 (トウ)
- Agrostophyllum
- Appendicula and Cymbidium
- Cattleya
- Canna タンドク
- Ficus callicarpa 榕樹 ~~無花果屬~~ ガジマン
- Juniperus bermudiana ✓ 檜柏 (イブキ)
- Arthursium
- Spathoglottis ~~calanthe~~ ^{plicata}
- Calanthe veratrifolia ✓
- Dendrobium Wilhelm Stuber ✓ 木蘭 木斛科 (モクゴク)
- Constance ✓
- Renantherella histrionica ✓
- Saccolabium miniatum ✓
- Epidendrum Stamfordianum ✓
- obrienanum
- Bougainvillea
- Cassia spectabilis
- Saraca indica
- Waringin
- Gladiolus
- Hibiscus (Mainhot) 黄蜀葵 (扶桑屬) ブツサウケ
- Lantana
- Hydnocarpus
- Cratoxylon formosum
- ~~木薯~~
- Tapioca
- Pachyrhizus (Yam Bean) 番薯 クズイモ

サ

昭南博物館館報

昭和十一年五月分

館長
職員

德川義親侯爵	羽根田彌太郎	菅原彌一郎	大島義男	中田康雄	大森松代	土田美代子
氏	氏	氏	氏	氏	氏	氏

五月の館務は常片如し執行す

本月觀覽者左の通り

日本人	七四四
馬來人	一七四
印度人	一三〇
支那人	一三八

合計 壹萬壹千六百三十六人

主要の人館に来る

SYONAN BOTANICAL GARDENS

Monthly Report for June, 2603.

1. Dr. Furtado's report on his work.

Herbarium. Che' Mohd. Nur re-arranged 3,804 specimens of the Rubiaceae family. Che' Kiah mended 281 specimens and mounted 80 specimens of Algae.

As a result of new species detected in the Calamus Section on which I am working at present, I had to re-draft my specific key for the Section.

187 specimens were identified for Nipponese officials.

Mr. York Chye made 5 drawings of 4 species of Calamus. His time was also taken in preparing some maps for the Department.

Miscellaneous. I took round three times some Nipponese officials who were interested in the medicinal plants that could be easily grown in Malai. I pointed out to them that many local plants like Datura metel should be investigated regarding the possibilities of their use as drugs at present. Datura, for instance, figures very largely in native medicine and in some cases is reputed to be a very efficacious remedy.

Rice and Sugar were brought and distributed to the coolies, the distribution of the rice being done, as usual, twice a month. No oil could be obtained during this month. There is a possibility of the Rice Consumers' Unit being cancelled, but Mr. Sudo is making arrangements for facilities to obtain rice en bloc and then distributing it to our coolies during their leisure. Failure to obtain rice en bloc will mean a good deal of trouble to our coolies, as it is often difficult to get rice and other rationed articles in a short time and after working hours.

I have managed to settle 8 families in the Tyersall area and probably more will like to go there, as now the rumour that the place is haunted has proved to be untrue.

Many aroids especially Alocasia macrorrhiza have been planted along the fence of the Johore Rajah's palace grounds.

There has been some dissatisfaction among the Yonins who have to work on Sundays. They are put on a daily wage basis, and yet they are told that they will not get any extra wages for Sundays and other holidays. As Tokubetu-Si provide for overtime wages and the coolies and the monthly paid staff actually draw overtime in the Municipal offices, the Yonins of our department seem to think that we are harsh on them at a time when the essential commodities are very dear in the market. I think therefore the question of overtime for the Yonins should be referred to the Tokubetu-Si for a general elucidation, since the Yonins get less pay if they work for the less number of days specified for the month.

2. Labelling & recording of plants.

Dr. Koriba wrote and fixed 100 Japanese labels (on white painted wood) and fixed them in place in the Gardens.

The label printers made 85 painted labels. They also prepared 130 more white wooden labels for writing Japanese plant names. 20 standard aluminium labels for lawn O were renewed and about 90 hanging aluminium labels were made for vegetables and orchids.

Checking of lawn maps and record cards was continued by Messrs. Lange and Alphonso. They dealt with lawns H and I.

3. Mr. Holttum's botanical work.

Mr. Holttum continued his work on local and cultivated orchids. He studied and prepared descriptions and keys for the groups of *Eulophia*, *Bromheadia*, *Thelasis* and *Acriopsis*, and the two genera *Thrixspermum* and *Sarcochilus* in the *Vanda* group. He also wrote a short account of the exotic cultivated orchids of the *Oncidium* group. He prepared drawings of several more local orchids.

4. Mr. Corner's botanical work.

Mr. Corner continued his work on the local fungi. He has completed his investigations of the two families *Clavariaceae* and *Cantharellaceae* and of the genus *Thelephora*. These are monographic studies embracing the species of the whole world. He is now engaged on writing up the results and preparing the drawings. Mr. Corner also assisted Dr. Koriba in his botanical studies both in the laboratory and in Syonan Island by botanical excursions on Sunday mornings.

5. Potting Yard.

413 plants were potted or re-potted. 359 cuttings were planted of species needing propagation. Ten kinds of seeds were planted including the very interesting local species *Ancistrocladus pinangianus* (seeds obtained by Dr. Koriba and Mr. Corner in the Reservoir Jungle). 76 foliage plants were sent for display in the Plant House, and 38 brought back to the Potting Yard for re-potting. 6 plants were sent to Government House.

6. Plant House. The stock of pot-plants was maintained as usual. Some more *Anthuriums* were re-potted, and many plants top-dressed with soil and fertilizer. The climbers on the roof of the small plant-house were pruned, as they were giving too much shade. 222 new plants from the Chinese gardener's nursery were sent for display on the steps, and 211 old plants returned.

7. Orchids.

Few new pollinations were made during the month, as the stock of flasks for raising seedlings is now fully in use. 20 seed-pods were gathered during the month; several had no good seeds, and several others few seeds. Among the latter were some very interesting crosses between *Spathoglottis* and *Phaius*, two genera which have never previously been crossed together. Another cross was between two small species of *Dendrobium*; this will be of much botanical interest. A few seeds were obtained of *Arachnis Lowii* (a very fine Bornean species) with *Arachnis flos-aeris* and *Renanthera Storiei*. One new *Vanda* hybrid flowered during the month, but it was not very distinctive. Several of the local species of orchids flowered and were examined by Mr. Holttum.

8. General work in the Gardens.

For the first 7 days of the month 6 men went daily to the Museum, but after that we had the full staff employed at the Gardens. Much work was however done at Tyersall, so that arrears of weeding were not made good, but a good deal was done to make the Gardens more tidy. A considerable length of roadside drains were weeded, beside the Main Gate, Office Gate, Office Ring and Lower Ring Roads. The Lake-side path was also weeded, and the approach to the Office.

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✓ 2. Labelling & recording of plants.

Dr. Koriba wrote and fixed 100 Japanese labels (on white painted wood) and fixed them in place in the Gardens.

The label printers made 85 painted labels. They also prepared 130 more white wooden labels for writing Japanese plant names. 20 standard aluminium labels for lawn O were renewed and about 90 hanging aluminium labels were made for vegetables and orchids.

Checking of lawn maps and record cards was continued by Messrs. Lange and Alphonso. They dealt with lawns H and I.

3. Mr. Holttum's botanical work.

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Mr. Holttum continued his work on local and cultivated orchids. He studied and prepared descriptions and keys for the groups of *Eulophia*, *Bromheadia*, *Tnelasis* and *Acriopsis*, and the two genera *Thrixspermum* and *Sarcochilus* in the *Vanda* group. He also wrote a short account of the exotic cultivated orchids of the *Oncidium* group. He prepared drawings of several more local orchids.

4. Mr. Corner's botanical work.

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Mr. Corner continued his work on the local fungi. He has completed his investigations of the two families *Clavariaceae* and *Cantharellaceae* and of the genus *Thelephora*. These are monographic studies embracing the species of the whole world. He is now engaged on writing up the results and preparing the drawings. Mr. Corner also assisted Dr. Koriba in his botanical studies both in the laboratory and in Syonan Island by botanical excursions on Sunday mornings.

5. Potting Yard.

413 plants were potted or re-potted, 359 cuttings were planted of species needing propagation. Ten kinds of seeds were planted including the very interesting local species *Ancistrocladus pinangianus* (seeds obtained by Dr. Koriba and Mr. Corner in the Reservoir Jungle). 76 foliage plants were sent for display in the Plant House, and 38 brought back to the Potting Yard for re-potting. 6 plants were sent to Government House.

6. Plant house. The stock of pot-plants was maintained as usual. Some more *Anthuriums* were re-potted, and many plants top-dressed with soil and fertilizer. The climbers on the roof of the small plant-house were pruned, as they were giving too much shade. 222 new plants from the Chinese gardener's nursery were sent for display on the steps, and 211 old plants returned.

7. Orchids.

Few new pollinations were made during the month, as the stock of flasks for raising seedlings is now fully in use. 20 seed-pods were gathered during the month; several had no good seeds, and several others few seeds. Among the latter were some very interesting crosses between *Spathoglottis* and *Phaius*, two genera which have never previously been crossed together. Another cross was between two small species of *Dendrobium*; this will be of much botanical interest. A few seeds were obtained of *Arachnis Lowii* (a very fine Bornean species) with *Arachnis flos-aeris* and *Renanthera Storiei*. One new *Vanda* hybrid flowered during the month, but it was not very distinctive. Several of the local species of orchids flowered and were examined by Mr. Holttum.

8. General work in the Gardens.

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For the first 7 days of the month 6 men went daily to the Museum, but after that we had the full staff employed at the Gardens. Much work was however done at Tyersall, so that arrears of weeding were not made good, but a good deal was done to make the Gardens more tidy. A considerable length of roadside drains were weeded, beside the Main Gate, Office Gate, Office Ring and Lower Ring Roads. The Lake-side path was also weeded, and the approach to the Office.

Lawns A & B - Several beds were weeded, and all Canna beds cleaned of dead flowers.

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Lawn D - All beds near the Office, including the Hibiscus beds, were weeded, and fertilizer added. Some new Pentas plants were planted to fill up the ground under the tall Tecoma shrubs in front of the Office.

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Lawn E - The sun rockery was thoroughly weeded and the small shrubby plants which had grown too bushy pruned. The larger succulents are making very good growth.

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Lawn J - All beds were weeded and a dressing of compost added.

Lawn K - A large Shorea tree near the entrance to the Potting Yard had many small dead branches in the crown, and it was thought safer to prune the crown entirely, to prevent possible danger of the tree falling over Cluny Road. This work took a gang of men a week to complete. Some Nibong poles were also felled, and used in making stakes for the climbing orchids.

Lawn O - Three new seedling Oleanders were planted as a trial. A new bed was dug for the large-flowered white Crinum, of which we now have many plants. All flower beds and borders were weeded and manured. The gravel paths on the sun-dial terrace were weeded, and the paved paths planted at the edges with Alternanthera. A new Plumaria (P. obtusa, small variety) was planted.

Lawn Y - A large bamboo overhanging Tyersall Road was pruned.

9. Vegetable Gardens (report by Mr. Lange).

The following beds were prepared and planted:-

- 6 beds of Long Bean, Brinjal, Bendi
- 4 " " Maize, Cucumber, Bayam
- 3 " " Brassica, Sweet Potato
- 2 " " Indian Lettuce, Kangkong
- 1 bed of Chilli.

The harvest was satisfactory: 3 bunches of Bananas and 51 Papayas were cropped.

9 gallons of Tobacco infusion and 3 gallons Kerosene emulsion (stock solution) was prepared to combat plant pests.

2 large heaps of compost was made.

A further 2 varieties of Sweet Potato have been found and added to the collection.

12 new kinds of vegetable crops have been established from seeds received by Dr. Koriba from Japan. The viability of the seeds was good. Records for each particular crop are being kept in order to study its adaptability to local conditions. More are to be planted.

Few of the seeds from the cross Hibiscus manihot x Hibiscus esculentus germinated. The few young seedlings succumbed to "damping off disease". However good results have been obtained from Hibiscus mutabilis x Hibiscus radiatus.

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SYONAN BOTANICAL GARDENS

Original dupl.
copies handed
to Sudo-san
on 2/8/27.

Monthly Report for July, 2603.

1. Dr. Furtado's report on his work.

Herbarium. 10,839 specimens of the Hong Kong herbarium have been incorporated in the general herbarium. These specimens represent about two-fifths of the total number of the specimens in the herbarium.

A good many Nipponese officers both from Syonan and from outside came to the Gardens for information about medicinal and poisonous plants and also to see specimens either growing in the Gardens or preserved in the herbarium.

A small set of the common poisonous and medicinal shrubs and creepers was made and presented to the Tanglin Okabutai concerned with research in drugs. I had to go three times to the grounds and advise the persons concerned as to the choice of the ground, the manner of preparing it, etc. In all 66 plants were presented to the Okabutai.

Another set of weeds having edible tops and leaves was made, dried, named and presented to a Military medical officer of the Nipponese garrison. The interest in the weeds supplying leafy vegetables has been very great recently so that some medical officers have asked for more sets and volunteered to pay for the artists and get drawings made of the plants.

Library. Che' Abdul Wahab typed 31 titles for recently bound books for which the printing department has not put any titles on the covers, and pasted the typed slips onto the back of the books.

A large number of medical and fibre experts have been consulting our library. This takes a good deal of my time, as I have personally to show the books and sometimes the chapters concerned to the information seekers. Apparently the other libraries in Syonan, though having the necessary books, have not persons who can guide consultants to the necessary information.

Miscellaneous. Rice and Sugar and oil were distributed to the coolies and their families as usual. This time oil was obtained in the same quantity as given to other persons outside the consumer-unit and so the coolies were satisfied.

On 28th July 46 Gardens coolies and 5 outside ones (these engaged as substitutes for the Gardens coolies) were sent to Thailand at the request of Kosei-ka. I had to do a great deal of work before these would prepare themselves to go to Thailand.

In consequence of the large exodus of coolies to Thailand and also because of the increase in the coolie wages made by different Okabutais, firms, etc. in Syonan, it has been found difficult to engage coolies for the Gardens at the usual Tokubetu-Si wage-scale, and it is feared that, if the wages of our coolies are not increased, more of our coolies will leave the Gardens. At present we have 6 vacancies excluding 46 vacancies created by the coolies who have left for Thailand. It is suggested therefore to give an increase to the existing coolies, to make them work on alternate Sundays, and to engage women and old men for light work.

2. Labelling and Indexing of Plants.

The Label Printers made 40 new wooden labels and renewed

30 old ones. They also renewed 10 standard aluminium labels and made about 100 hanging labels.

120 new Japanese labels for trees of interest were written and placed in position under Dr. Koriba's supervision.

15 sign-boards for Bukit Timah Forest Reserve and 100 new boards for Japanese plant-labels were prepared with white paint, ready for writing.

Messrs. Lange and Alphonso continued their work on lawn plans, finishing lawns H & J and working on K & L.

Mr. Alphonso began a survey of the varieties of Plumeria in the Gardens (about 15 kinds), preparing descriptions; from which they may be identified. He also continued his recording of the varieties of Hibiscus.

3. Mr. Holttum's Botanical Work.

Mr. Holttum continued his study of Malayan orchids. He almost completed a survey of the large Vanda-Sarcanthus group (began in June), dealing with about 75 species, and in addition preparing some notes on exotic cultivated species. Not all these observations are yet fully written out. Keys to the larger genera were prepared and inserted in the herbarium, all specimens being re-arranged. Several more drawings were also made, of flowers which were available during the month.

4. Mr. Corner's Botanical Work.

Mr. Corner continued his researches on Malayan fungi and spent much time on making detailed drawings. He also began, at Dr. Koriba's suggestion, a study of the leaf-structure on the genus Pandanus and the similar genera Mapania and Hypolytrium in the Cyperaceae. The preliminary investigation showed that the leaf-structure would be a useful aid and criterion to the classification of Pandanus. Mr. Corner also assisted Dr. Koriba in his botanical work.

5. Potting Yard.

266 plants were potted or re-potted, and 275 cuttings made. 17 plants were sent to the plant-house and 60 brought to the potting yard for re-conditioning. 10 plants were supplied for Tan Tock Beng hospital, and 66 to the Tanglin pharmaceutical Okabutai (see Dr. Furtado's report). After the 20th July Marzuki, Foreman Gardener in charge of the potting yard, had sick leave, and also the staff was reduced owing to shortage of labourers; during the remainder of the month little besides watering and weeding was done.

A very beautiful red-flowered Mucuna from New Guinea, which was planted last year as a trial to climb on the Cratoxylon tree in the potting yard, flowered during the month for the first time. It is hoped that seeds will be formed, as this is one of the finest flowering climbers we have in the Gardens.

6. Plant House.

About 200 new flowering plants were brought to the steps for display, from the Chinese Gardener's nursery, and a similar number of old plants returned. The usual routine work continued in the plant house. A plant of the beautiful Mucuna from New Guinea mentioned above was planted so that it will climb on the front of the Plant House and display its flowers hanging from the roof.

7. Orchids.

New seeds of 12 hybrids were sown in flasks during the

month; two or three of these are probably not fertile. The best of these hybrids are probably *Arachnis flos aeris*-*Hookeriana* x *Renanthera Storiei* and with *Vanda Dearei*. Some others are between small-flowered *Dendrobiums*, raised for their botanical interest.

15 new pollinations were carried out. Several of these were with *Trichoglottis luzonensis* and *T. philippinensis*, which flower rarely but have good and unusual colour combinations; they appear to cross freely with *Arachnis* and *Vandopsis*.

Routine laboratory work of transplanting continued, as far as the supply of flasks permitted, and 5 batches of seedlings were transferred from flasks to pots.

Three *Vanda* seedlings flowered for the first time but did not prove of great interest.

8. General Work in the Gardens.

Lawns A & B - Weeding of *Canna* and other beds and general tidying of this area was continued. Two dead *Sago* palms trunks were felled and removed.

Lawn D. - A dead *Cupressus* was removed and a new plant put out. Several young plants were given fertilizer.

Lawn H - The paths round and through this lawn, including the Lakeside path, were weeded, and the drains beside them also.

Lawn O - The flower beds and borders were maintained as usual. Two new *Bougainvillea* seedlings were planted for trial.

Lawn T - The Sun Rockery, which had become much overgrown with grass and weeds, was thoroughly cleaned.

General.

8 gallons of petrol was obtained for the motor mowers, and the grass cut on lawns B & E & O; but this barely dealt with arrears of work. The reduction in labour staff from the 24th left several areas without men to cut them and, unless a regular supply of petrol is obtained and also some more grass-cutting coolies, the grass in the Gardens cannot be maintained satisfactorily. The longer the grass is left untended, the worse will become the situation, as motor mowers cannot cut long grass.

9. Vegetable Gardens (report by Mr. Lange).

17 beds were re-conditioned for the reception of various vegetable crops. Throughout the month general routine work and maintenance was performed as usual. The harvest continued to be satisfactory. 8 bunches of bananas were cropped.

In lawn P several varieties of *Citrus* are fruiting, but the Italian and Tahiti limes which flowered for a short duration did not set fruit. The 6 varieties of herbaceous cotton from the Philippines Islands are yielding a satisfactory amount of raw cotton. The state of weather was suitably dry for the ripening of pods.

It is now possible to select and eliminate unsuccessful vegetable crops for local conditions from the experimental trial on imported Japanese seeds, but it is not yet known whether the successful crops will flower and seed under local conditions. It is desirable to propagate these vegetables so far as possible and thereby eliminate dependence on import from Japan for good strains of vegetable seeds.

Three experiments were completed this month. They were as follows:-

- (a) Manurial trial of well rotted compost as against fresh green matter;
 - (b) Nitrogenous manuring of Sweet Potato at different stages of the plant's development;
 - (c) sweet Potato growing practised locally, as against the practice in Japan (arranged by Dr. Koriba).
- Notes on the above experiments have been recorded.

SYONAN BOTANICAL GARDENS

Monthly Report for August, 2603.

1. Dr. Furtado's report.

Herbarium. Che' Nur re-arranged 4740 specimens in the general herbarium and incorporated into it 916 specimens from the Hong Kong Herbarium.

Che' Kiah dried 20 specimens for the Herbarium.

About 60 specimens were identified for Nipponese officials, most of which were weeds used as vegetables. Mr. York Chye, Che' Juraimi and Che' Bajuri made 74 copies of drawings of vegetable plants and 30 original drawings of fresh specimens.

Library. Mr. A. Especkerman was officially appointed as a temporary typist from 12th August and was busy in making a typed list of the card index of the books according to the authors.

Miscellaneous. Che' Kiah spent a week in Penang and brought for the Syonan Botanic Gardens living specimens and seeds of economic plants which he was specially instructed to collect.

I had to take a number of Nipponese officials round the Gardens, most of whom were interested in medicinal and timber trees.

A barbed wire fence was put round the Gardens Coolie Lines with the view to control of thieves and unwanted visitors to the lines.

Two thieves were arrested by our watchmen, one in the act of smuggling out a number of goods from Raffles College grounds, and the other thief on suspicion that he was responsible for stealing clothing belonging to some coolies who had gone to Thailand. The first thief was given into the custody of the soldiers at Raffles College; the second thief was handed over to the Orchard Road Police Station for further enquiry.

A list of the common poisonous plants from Burma and Assam was prepared and given over to Military Nipponese officials.

During the first two weeks of the month Che' Nur and I were busy in distributing ration cards to the people, in explaining the new procedure concerning the rations, and in helping persons in the area around the Gardens to correct defects which would have prevented them from obtaining their rations.

2. Labelling & Indexing of Plants.

Only one Label-printer was employed during the month (Bajuri bin Sappan); he spent part of his time in copying drawings of vegetable plants, and so few labels were made. 16 new labels were painted and 10 old ones re-painted. 85 hanging aluminium labels were made. 70 new Japanese labels were written by Mr. Sudo and placed in the Gardens. 38 new sign-boards for Bukit Timah Forest Reserve were prepared with white paint.

Mr. Lange continued his revision of the plans of the trees and shrubs planted in the Gardens and of the index cards referring to the plants. Lawns P, R and S were checked and the cards numbered according to the plans. Cards were made for all the memorial trees, and details in Japanese entered by Mr. Sudo.

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Mr. Alphonso continued to record the varieties of *Plumeria* in the Gardens and prepared descriptions of two during the month; he also continued with his records of *Hibiscus*.

3. Mr. Holtum's botanical work.

Mr. Holtum continued his study of Malayan orchids. He completed his account of the large *Vanda-Arachnis* group, with keys to the genera, and revised his earlier incomplete account of the *Goelogyne* group. He also studied the genera *Microstylis* and *Liparis*, preparing descriptions of all species, and keys; this is not yet fully written up. A few new drawings were made from plants which flowered during the month, and a few copies of drawings in the Gardens collection.

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4. Mr. Garner's botanical work.

Mr. Garner continued his researches on Malayan fungi and gave most of his time to the completion of microscopic drawings. He assisted Dr. Koriba in general botanical work and in the preparation of planting-material. He also prepared material on wild fruits and agricultural plants for the Marquis Tokugawa.

5. Potting yard.

During the Marzuki's absence, Mr. Alphonso was in charge, with a reduced staff of 3 men. A consignment of seeds, cuttings and plants of medicinal plants were brought from Penang by the ship and potted. Cuttings were made of various Gardens plants of which the stock needs replenishing, including some of the *Begonias* and *Peperomias*. Seeds of *Gossypium* and *Hibiscus* hybrids were sown; also seeds of the West Indian Soap-berry (*Sapindus saponarius*) and African Oil Palm. New plants of *Poinsettia* were propagated for budding experiments.

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Dr. Koriba brought seeds of *Victoria regia* from Java; these were planted partly in the Lake and partly in pots in a tank in the Potting Yard.

Seeds of various plants, and water-lilies, were supplied to Japanese officers, also 11 palms, 3 *Begonias*, 1 *Casuarina* *australis* and 1 *Casuarina* *terrestris*. A plant of *Alacocarpus* *gambicus* was supplied for Government House.

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6. Plant House.

The plants in the house were maintained as usual, and the flowering plants on the steps changed weekly. In the border of the small plant-house two more *Peristeria* orchids and one *Vanilla* plant were planted.

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7. Orchids.

The work on orchid seedlings was carried on as usual by Dr. Alphonso. 12 new plants of seeds were sown in flasks, and many seedlings transplanted. Several new pollinations were made during the month, most of them of an experimental nature. No new hybrid flowered during the month. At the orchid nursery, several benches were renewed with wood and bricks from the mill. The usual display of flowering plants was maintained in the small plant-house.

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8. General work in the Gardens.

Owing to reduction of staff, only essential work was carried out. 4 Indian women and 9 Malay women were engaged for weeding and mounding, the Indian women were employed in weeding drains and beds in the southern part of the Gardens

(Main Gate and Office Gate Roads), and the Malay women in the vegetable gardens and bandstand area, chiefly weeding beds. Five old men were also engaged to help in sweeping, weeding and watering and other similar work.

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A supply of petrol was obtained and the two Dennis Motor Mowers were used to cut grass on lawns A, B, D, E, J, H, W and X. The small Hunsome's mower was out of order and undergoing repairs.

Island in Lake. A dead Pandanus was cut down and self-planted bushes of several species removed.

Fertilizer was given to various young plants on lawns J, H, and B.

Thubergia climber smothering trees along the Cluny Road boundary was cut back.

Tree planting.

One dead Cupressus on lawn D was replaced with a new plant of Cupressus obtusa var. squarrosa. New plants of Prumnopitys elegans and Fodocarpus sp. were also planted on lawn D, and a plant of the recently selected Bougainvillea seedling no. 2 added to the Bougainvillea collection on lawn B. On lawn D beds were prepared for planting Cocoa and Coffee bushes. On the bandstand hill dead plants of Cycotostegia, Leptocarpus and Myrsine were replaced, and also two new Bougainvillea seedlings were planted.

Vegetable Beds (report by Mr. Lange).

Many beds were re-conditioned for the reception of the following crops:-

- 5 beds Long Beans and Brinjals;
- 4 " Sweet Potato, Bandy and Cabbage;
- 3 " " " and " " " "
- 2 " " " and " " " "

The present use reserves considerably as the best part of the vegetable nursery is now utilized for growing crops which do not require particular attention (Sweet Potato, Cucumber and Tomato) and because of the recent reduction of skilled labour.

In lawn C the banana area was recultivated and manured according to the quarter year's system.

Some large Ananas cuttings had their roots and crowns pruned in order to facilitate removal in the near future.

In lawns P and I some vegetables established from Japanese seeds were harvested. These particular strains appear to grow well under local conditions.

In lawn F an experiment on Sweet Potato, arranged by Dr. Morris, was terminated and some notes recorded.

Death of One' Marzoni, Foreman Gardener.

One' Marzoni, who had been absent from work on sick leave for more than a month, died of pulmonary tuberculosis on 30th August. He had 17 years' service, as label-printer, Sub-overseer and Foreman-Gardener, and was a very reliable and useful man. He had charge of the Rotting Yard and of propagation generally, and had a very extensive knowledge of the plants in the gardens. The fact that we have lost few kinds of plants from the Gardens during the last 18 months is largely due to his care in maintaining stocks.

R. Holman
1.9.2603

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monthly report for August, 2603.

I. Mr. Furtado's report.

Herbarium. Che' Mue re-arranged 4743 specimens in the general herbarium and incorporated into it 916 specimens from the Hong Kong Herbarium.

Che' Hieh tried 27 specimens for the Herbarium.

About 63 specimens were identified for Nipponese officials, most of which were weeds used as vegetables. Mr. York Chye, Che' Hursini and Che' Bauri made 74 copies of drawings of vegetable plants and 33 original drawings of fresh specimens.

Library. P. A. Aspeckness was officially appointed as a temporary typist from 12th August and was busy in making a typed list of the card index of the books according to the authors.

Miscellaneous. Che' Hieh spent a week in Norway and brought from the Lyron Botanic Gardens living specimens and seeds of economic plants which he was specially instructed to collect.

I had to take a number of Nipponese officials round the grounds, most of whom were interested in medicinal and timber trees.

A barbed wire fence was put round the gardens double line with the view to control of thieves and unwanted visitors to the lines.

Two thieves were arrested by our watchmen, one in the act of digging out a number of goods from the College grounds, and the other thief on suspicion that he was responsible for the theft of some copies and two goats to Thailand. The first thief was given into the custody of the soldiers at Keelias Garage; the second thief was handed over to the police at Police Station for further enquiry.

Most of the seeds and some plants from Burma and Assam was received and given over to military Nipponese officials.

During the first two weeks of the month Che' Mue and I were busy in distributing ration cards to the people, in explaining the new procedure concerning the rations, and in helping persons in the area around the gardens to correct defects which would be discovered them from obtaining their rations.

2. Labeling and indexing of plants.

My own label-printer was employed during the month (Saiuri bin Saun); he spent part of his time in copying drawings of vegetable plants, and so few labels were made. 16 new labels were painted and 19 old ones re-painted. 35 hanging aluminium labels were made. 70 new Japanese labels were written by Mr. Sudo and placed in the Gardens. 38 new sign-boards for Bukit Timah Forest Reserve were prepared with white paint.

Mr. Lange continued his revision of the plans of the trees and shrubs planted in the blocks and of the index cards referring to the plants. Lawns P, R and S were checked and the cards numbered according to the plans. Cards were made for all the memorial trees and details in Japanese entered by Mr. Sudo.

Mr. Alphonso continued to record the varieties of Plumeria in the Gardens and prepared descriptions of two during the month; he also continued with his records of Hibiscus.

3. Mr. Holttum's botanical work.

Mr. Holttum continued his study of Malayan orchids. He completed his account of the large Vanda-Arachnis group, with keys to the genera, and revised his earlier incomplete account of the Coelogyne group. He also studied the genera Microstylis and Liparis, preparing descriptions of all species, and keys; this is not yet fully written up. A few new drawings were made from plants which flowered during the month, and a few copies of drawings in the Gardens collection.

4. Mr. Corner's botanical work.

Mr. Corner continued his researches on Malayan fungi and gave most of his time to the completion of microscopic drawings. He assisted Dr. Koriba in general botanical work and in the preparation of planting-material. He also prepared material on wild fruits and agricultural plants for the Marquis Tokugawa.

5. Potting Yard.

During Che' Marzuki's absence, Mr. Alphonso was in charge, with a reduced staff of 3 men. A consignment of seeds, cuttings and plants of medicinal plants were brought from Penang by Che' Kiah and potted. Cuttings were made of various Gardens plants of which the stock needs replenishing, including some of the Begonias and Nepenthes. Seeds of Gossypium and Hibiscus hybrids were planted; also seeds of the West Indian Soap-berry (Sapindus saponarius), and African Oil Palm. New plants of Poinsettia were propagated for budding experiments.

Dr. Koriba brought seeds of Victoria regia from Java; these were planted partly in the Lake and partly in pots in a tank in the Potting Yard.

Seeds of various plants, and water-lilies, were supplied to Japanese officers, also 11 palms, 3 Begonias, 1 Casuarina sumatrana and 1 Caesalpinia ferrea. A plant of Elaeocarpus ganitrus was supplied for Government House.

6. Plant House.

The plants in the House were maintained as usual, and the flowering plants on the steps changed weekly. In the border of the small plant-house two more Peristeria orchids and one Vanilla plant were planted.

7. Orchids.

The work on orchid seedlings was carried on as usual by Mr. Livingston. 12 new kinds of seeds were sown in flasks, and many seedlings transplanted. Several new pollinations were made during the month, most of them of an experimental nature. No new hybrid flowered during the month. At the orchid nursery, several benches were renewed with wood and bricks from Tyersall. The usual display of flowering plants was maintained in the small plant-house.

8. General work in the Gardens.

Owing to reduction of staff, only essential work was carried out. 4 Indian women and 9 Malay women were engaged for weeding and sweeping; the Indian women were employed in weeding drains and beds in the southern part of the Gardens

(Main Gate and Office Gate Roads), and the Malay women in the vegetable gardens and bandstand area, chiefly weeding beds. Five old men were also engaged to help in sweeping, weeding and watering and other similar work.

A supply of petrol was obtained and the two Dennis Motor Mowers were used to cut grass on lawns A, B, D, E, J, H, W and X. The small Ransome's mower was out of order and undergoing repairs.

Island in Lake. A dead Pandanus was cut down and self-planted bushes of several species removed.

Fertilizer was given to various young plants on lawns J, E, D and B.

Thunbergia climber smothering trees along the Cluny Road boundary was cut back.

9. New planting.

One dead Cupressus on lawn D was replaced with a new plant of Cupressus obtusa var. squarrosa. New plants of Prumnopitys elegans and Podocarpus sp. were also planted on lawn D, and a plant of the recently selected Bougainvillea seedling no. 2 added to the Bougainvillea collection on lawn B. On lawn D beds were prepared for planting Cocoa and Coffee bushes. On the Bandstand hill a dead plants of Cryptostegia, Brunfelsia and Duranta were replaced, and also two new Bougainvillea seedlings were planted.

10. Vegetable Gardens (report by Mr. Lange).

Many beds were re-conditioned for the reception of the following crops:-

6	beds	Long Bean and Brinjal;
4	"	Sweet Potato, Bendy and Bayam;
3	"	Kang Kong and Brassica;
2	"	Maize and Sword Bean.

The harvest was reduced considerably as the best part of the vegetable nursery is now utilized for growing crops which do not require particular attention (Sweet Potato, Tapioca and Keladi) and because of the recent reduction of skilled labour.

In lawn R the Banana area, was recultivated and remanured according to the quarter year's system.

Some large Angsana cuttings had their roots and crowns pruned in order to facilitate removal in the near future.

In lawns P and Y some vegetables established from Japanese seeds were harvested. These particular strains appear to grow well under local conditions.

In lawn Y an experiment on Sweet Potato, arranged by Dr. Koriba, was terminated and some notes recorded.

11. Death of Che' Marzuki, Foreman Gardener.

Che' Marzuki, who had been absent from work on sick leave for more than a month, died of pulmonary tuberculosis on 30th August. He had 17 years' service, as Label-printer, Sub-overseer and Foreman-Gardener, and was a very reliable and useful man. He had charge of the Potting Yard and of propagation generally, and had a very extensive knowledge of the plants in the Gardens. The fact that we have lost few kinds of plants from the Gardens during the last 18 months is largely due to his care in maintaining stocks.

Copy submitted to
2/10/03.
(Typed by Mr. Especkerman)
29 in 54/1/03

SYONAN BOTANICAL GARDENS

For
Monthly Report/September, 2603

1. Dr. Furtado's Report

Herbarium & Library. Che' Nur re-arranged 8,428 specimens belonging to the Sapotaceae, Ebenaceae, Styraceae, Oleaceae, Salvadoraceae, and Apocynaceae, incorporating Hong Kong specimens.

Che' Kiah collected and dried 40 specimens and mended 158 specimens from the Hong Kong Herbarium. He also helped Che' Nur in removing the Hong Kong specimens from the packages and in counting them.

I assisted in naming many specimens of poisonous and edible plants brought to us from Burma and elsewhere. (In many cases I had to supply Hindustani names to the plants of which inquirers had only Latin names, and in some cases I had to supply Latin names when the inquirers had vernacular names only).

Some Military Officers showed interest in Timber trees, and I had to supply particulars concerning their specific gravity, durability, growth, scientific names, etc.

Messrs York Chye, Juraimi and Bajuri prepared over 150 drawings of weeds that could be used as vegetables. These drawings were required by the Military Authorities.

Mr. A. Especkerman typed 75 sheets of the library catalogue and helped Mr. A. Wahab in various ways.

Miscellaneous. I was busy during the month with miscellaneous administrative duties such as the classification of our labourers, etc. according to the new rules. Further, a good deal of time was taken in transmitting to the people the different orders sent by the Police.

Death. On 24th instant one Indian Coolie, Kailasam, died of a short sickness. He had worked in the Gardens for nearly 30 years.

Labour Shortage. We are still experiencing great difficulties in obtaining labourers to do some essential work in the Gardens.

2. Mr. Holttum's Botanical Work.

Mr. Holttum studied the genus *Oberonia* (30 species in Malaya) and prepared descriptions of all species, with a key and diagrams of the habit and flowers of most of the species. He then began to deal with the Malayan terrestrial orchids, of which the genera *Habenaria*, *Corysanthes*, *Nervilia* and *Cryptostylis* were completed, so far as material available permits. A few more drawings were made.

3. Orchids. A second seedling of the hybrid *Vanda Dearei* X *Miss Bagnin* flowered during the month and was described. A plant of the little-known species *Cymbidium Atropurpureum* flowered and the opportunity was taken to check published descriptions. The seedlings in culture were maintained, in the care of Mr. Livingston, five new hybrids being added during the month. The additions included hybrids of local *Dendrobiums* belonging to different groups of species, which have never been crossed previously. The results should be of considerable botanical interest. 29 new pollinations were made, some of which have failed.

4. Labelling and Indexing of Plants.

Only one Label-printer was employed, (Che' Bajuri bin Sappan). He made 35 new painted labels and recopied 30 old ones. During 11 days he was employed in making line-drawings of plants used as vegetables. Mr. Lange continued to devote some of his time to checking the lawn-maps and the record-cards of the plants. He dealt with Lawn T.

5. General Work in Gardens.

Grass-Cutting. The two Dennis motor mowers were in use throughout the month, cutting grass on lawns A, B, E, H, J, W & X. Men with hand-mowers were working on lawns C, D & O, and two scythe-men trimming edges, banks, etc.

Drains. The four Tamil women spent more than half the month cleaning drains on the main Gate Road, Motor Ring Road, and Director's drive.

Lake. The work of cleaning the island, begun at the end of August, was completed. A Tembusu tree on the west bank of the lake fell into the water and had to be cleared away. Some seedlings of Mangrove trees, previously planted in a tank by Dr. Koriba, were removed to the head of the lake, to discover whether these trees will grow in fresh water.

The sides of the inlet channel to the lake, in the Dell, collapsed and several days' work were needed to make it safe and clear. Some timber from Tyersall was used to repair the foot bridge at the foot of the lake, and also to bridge the channel at the head of the lake.

Lawns A & B. The Gann beds were weeded. It is difficult to find enough labour to keep them in proper condition.

Lawn D. Further economic plants were planted near the office for the convenience of visitors. Those planted in August and September are: Coffee, Cocoa, Cocaine, Citronella Grass, Pepper. Other plants in this lawn were weeded and treated with fertilizer.

Lawn J. A tree of *Carinaria* sp. (from South America) flowered for the first time. It belongs to the Brazil-nut family.

Lawn O. The flower beds and borders were maintained as usual, and a little replanting done. The ring-path was weeded.

6. Potting Yard.

Mr. G. Alphonso was in charge until the 16th, when he was admitted to hospital, remaining there for the rest of the month. After this, Mr. Lange supervised propagation work. The *Victoria regia* seeds brought from Djawa by Dr. Koriba on Aug. 28th began to germinate about Sept. 28th; we should be able to raise a number of plants from them. On the 9th, eight men went to the Zinja in the reservoir forest, taking many plants, for planting near the Zinja, as arranged by Dr. Koriba with Mr. Corner's assistance.

7. Plant House.

The plants were maintained as usual, and the flowering plants on the steps renewed weekly. A Vanilla plant was added to the permanent orchids in the lower of the small plant house.

8. Mr. Corner's Report.

Mr. Corner continued his researches on Malayan fungi and completed a large number of microscopical drawings. He also assisted Dr. Koriba in his studies of Malayan plants, in the collection of seeds and planting material and in the control of the Forest Reserves under the Botanical Garden

9. Vegetable Gardens (report by Mr. Lange).

The following beds were reconditioned for the reception of these crops:

8 beds of each Bendi and Sweet Potato
4 " " " Cucumber - Long Bean
3 " " " Brinjal - Maize
2 " " Rattish
1 bed of Brassica.

General routine and maintenance was as usual. Two heaps of compost were prepared in order to provide organic matter.

The Cajanus indicus flowered for the first time after nearly a year; also fruiting well is the Dioscorea bulbifera (Ubiatas)

A simple experiment to discover whether degeneration can occur in the local Cucumber by selection is now in the sixth generation. Conclusive evidence has not been obtained. The experiment will be repeated.

A new series of experiments in nitrogen manuring of Sweet Potato planted by the Japanese method are in progress

An experiment on Yam Beans is now in the third period of new growth.

A selection of seeds from Hibiscus esculentus has now given evidence that there exist two types. One has deeply lobed leaves and the other larger and not so deeply incised leaves.

In Lawn R the levbacious cotton from American origin is dying back. A considerable amount of raw cotton has been collected in spite of the weather and pests. The cotton has been utilised for orchid-seedling in the Gardens Laboratory.

Several well grown young trees of Casuarina pumatrana and Angrana have been removed elsewhere for planting.

2.10.2603

SYONAN BOTANICAL GARDENS

Monthly Report for October, 2603

1. Dr. Furtado's Report

Herbarium. Che' Kiah inspected most of the bottles and tubes from the spirit collections, refilling the bottles with alcohol or alcohol-formalin as necessary, and re-waxing and removing the corks where required.

He collected 400 specimens of about 20 different kinds of weeds used as vegetables. These are being dried at present.

Che' Nur rearranged 6,290 specimens in the general herbarium incorporating in it the specimens of the Hong Kong Herbarium of the corresponding families, namely, Apocynaceae, Asclepediaceae, Loganiaceae, Gentianaceae, Boraginaceae and Convolvulaceae.

Mr. Furtado identified over 50 specimens of edible weeds collected for the purpose of showing them to Military Students. He had also to attend to various inquiries made by Nippon-zin concerning plants of medicinal or economic importance, and also to supply to them the required information (or literature) about their analyses. Many inquiries were received also concerning plants poisonous to men and livestock.

Miscellaneous. Mr. Furtado visited Johore in the company of Prof. Kariene and Capt. Hachiya, the visit being in connection with the study of medicinal and poisonous plants. Some officers were taken round the Gardens to show them the different poisonous and medicinal plants in the Gardens.

It was a great relief to the coolies that the Department arranged for the oil distribution departmentally thereby saving the coolies a good deal of time and trouble.

It is rather difficult to recruit coolies at the existing rates, and further complications have arisen because certain departments offer the coolies not only higher wages but also higher rice rations. In view of this it is highly desirable that the status of many of our coolies as a labourer on light work should be reconsidered.

Mr. Especkerman typed 50 pages of the Library Catalogue, and 35 pages of poisonous and medicinal plants. He also assisted Mr. A. Wahab in collecting the coolies' ration cards and making their list for departmental use.

Mr. York Chye prepared 4 drawings of rattan and about 10 drawings of vegetables.

Mr. Furtado also assisted in teaching A.R.P. duties to the people in the Gardens Kampong and those living in the neighbourhood.

2. Mr. Holtum's Botanical Work

Mr. Holtum completed his study of the smaller terrestrial orchids and began to write up his notes on this group (about 90 species). He began a revision of some of the groups examined at the beginning of the present work, which were not treated with sufficient thoroughness. When this is completed a full revision of all Peninsular Orchids will have been made. A few more drawings were made during the month.

3. Mr. Corner's Botanical Work

Mr. Corner continued his researches on Malayan fungi and completed a large number of microscopical drawings. He also assisted Dr. Koriba in his studies of Malayan plants, in the collection of seeds and planting material and in the control of the Forest Reserves under the Botanical Garden.

4. Orchids

The first pure white Vanda hybrid flowered during the month (V. Josephine X. V. Hookeriana v. alba). The plant was not strong and had only one flower, but it is hoped by careful cultivation to induce stronger growth. If free-flowering, it should be very useful.

Mr. Livingston continued routine work with the seedlings in the laboratory. He made further experiments in adding acidic and neutral nutrient solution to some of the flasks, with valuable results. Some Vanda seedlings which were very yellow improved greatly on receiving acid nutrient, and Phaius-Spattoglottis seedlings improved on receiving neutral nutrient. 13 new plantings of hybrid seeds were made, but not all of them are likely to be successful. Plants from 4 flasks were planted out in the potting yard, and 8 new flasks were transplanted with immature seedlings. The cotton wool collected from cotton plants in the Gardens is under trial for use in plugging the flasks. 31 new pollinations were made.

5. Labelling and Indexing of Plants

Che' Bajuri painted 7 labels in Nippon characters, also 57 new labels of standard type, and repaired 48 old labels. He also made about 65 new aluminium labels and renewed 7 standard aluminium labels. Lawns H, S, E, F and P were inspected and labels renewed or removed for renewal as necessary.

Mr. Lange checked the plans of lawns A, B, C, & D, and the corresponding index cards, adding lawn numbers to the cards where these were lacking and making other corrections.

6. General Work in Gardens

Grass-Cutting. The two Dennis motor-mowers were in use throughout the month and cut grass on all the more open areas. Hand mowers were in use on the lawns round the office and bandstand and a sythe-man round the banks of the lake.

Canna-Beds. Three or four Tamil women were employed throughout the month weeding the Canna-beds; all the beds were weeded twice. Manure was also added. The drains beside the Main Gate Road near the Canna-beds were also cleaned.

Lawn B. The Caesalpinia bed was pruned and weeded. A large Bougainvillea fell; was pruned and re-supported.

Lawn D. The Tecoma beds by the office were pruned, weeded and manured. A plant of Ficus alba was planted and a bed made for Betel Pepper (Sireh) near the Black Pepper already planted.

Lawn E. The rockery was thoroughly weeded and the shrubs in it pruned.

Lawn H. Many fallen bamboo branches were cleared away.

Lawn O. All Gladiolus bulbs were removed to the office for drying and resting, and the Gladiolus beds planted with annuals. Six plants of Aphelandra tetragona were planted in one of the Crinum beds.

Gardens Jungle. A large Calophyllum tree fell across the end of Liane Road and had to be cleared away. A large branch also fell off another tree and blocked the road from Liane Road to the Potting Yard. Aroids on the trees by Cluny Road were cut back.

Lawn T. Two large branches on the old Waringing tree by the Director's house broke with their own weight and had to be pruned.

Lawn X. A number of young palms were weeded and manured.

7. Potting Yard

Owing to Mr. Alphonso's continued absence, supervision of work

was limited and little more than routine weeding, watering and re-potting was done. A number of tree seeds, obtained by Che' Ngadiman, were planted.

8. Plant House

Routine work of sweeping, cleaning, weeding and top-dressing of pot plants was continued. The plants on the steps were changed each Friday, and also the orchids in the orchid house.

9. Vegetable Gardens (Report by Mr. Lange)

Many beds were reconditioned for the reception of the following crops:

8	beds	of	Bendy
4	"	"	Long Bean, Cucumber.
3	"	"	Brinjals, Bayam, Brassica, Radish.
2	"	"	Shallots, Groundnuts
1	bed	of	Tomato.

In the Nursery many areas hitherto neglected have now come under Tapioca, and Sweet Potato cultivation.

General routine and maintenance was performed as usual.

2 gallons Tobacco infusion was manufactured to combat plant pests.

In Lawn P the Citrus and Papaya areas have been manured according to the quarter-year schedule. New Papaya trees have been replanted in place of unproductive trees. The Italian Limes have flowered and a few fruits have been observed. This is the first occasion that the plants are known to fruit since their introduction.

Many of the cotton plants are now dying back. It has been decided to prune them hard back in order to induce a second period of growth.

In Lawn R several varieties of Japanese seeds are under experimental trial. It is desired to select good strains of vegetable that could be suitable for growing under local conditions.

The long Japanese Cucumber is in its second generation and doing extremely well. Hitherto cucumber seeds from Suttons and Yates grown here have not proved as good as this particular strain.

Further experimental trials to ascertain the possibilities of deterioration from a pure line selection of the local cucumber are under observation.

Experimental nitrogenous manuring on the Japanese method of planting sweet Potato is still incomplete.

1.11.2603

SYONAN BOTANICAL GARDENS

Monthly Report for October, 2603

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Mr. Furtado identified over 50 specimens of edible weeds collected for the purpose of showing them to Military Students. He had also to attend to various inquiries made by Nippon-zin concerning plants of medicinal or economic importance, and also to supply to them the required information (or literature) about their analyses. Many inquiries were received also concerning plants poisonous to men and livestock.

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preparation of a list of wild and cultivated plants in Syonan Islands. He

B2/F10/7

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Experimental nitrogenous manuring on the Japanese method of planting sweet potato is still incomplete.

1.11.2603

The pot plants inside the houses were watered, cleaned and top-dressed regularly. Some of the hanging plants were re-potted.

9. Vegetable Gardens: Report by Mr. Lange

The following beds were reconditioned and planted with various crops:

6 of Bendi, Brinjals, Long Bean, Lobak

5 of Cucumber, Maize

3 of Yam Bean, Groundnut, Brassica

2 of Snake Gourd.

In Lawn P the different kinds of Radishes of Japanese origin are thriving very satisfactorily.

In Lawn R, 4 kinds of the American herbaceous annual cotton plants have been removed; with the advent of the rainy season they had made some new growth and were flowering quite well. The plants were 8 months old. At Dr. Watanabe's request Greater Yams and *Allium odorum* were grown in their place.

In the Nursery one particular type of Greater Yam, possibly from Serdang, has been shown to mature in 6 to 7 months over a period of 4 plantings. It has been decided to multiply this variety.

With the near exhaustion of artificial fertilizers the trial of sludge, as quick acting manure, is being substituted.

1.12.2603

SYONAN BOTANICAL GARDENS.

Monthly Report for November, 2603.

1. Dr. Furtado's report.

Che' Nur re-arranged 4702 sheets in the Herbarium, incorporating the Hong Kong specimens of the corresponding plant-families, namely, Convolvulaceae, Solanaceae, Scrophulariaceae, Orobanchaceae, Lentibulariae and Gesneraceae, and wrote 125 herbarium Index Cards for the new genera formerly not represented in our herbarium.

Mr. Chan York Chye made 5 drawings of Calamus species and 3 of the vegetables.

Che' Kiah dried 400 specimens of edible weeds and inspected alcohol collections in 12 almeirahs, changing or adding alcohol where necessary.

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Che' Abdul Wahab continued with the usual office routine work. Some of his work had to be done by Mr. A. Especkerman because during this month he had the extraordinary work of preparing particulars for Labourers employment books, etc., required by the new Regulations made for labourers by the Tokubetu-Si. He also devoted some time in order to obtain 37 tyres and 33 tubes for bicycles of 19 employees of the Gardens. As there are now no more Sugar and Rice Units in the Gardens, it is expected that in future Che' Wahab will be able to prepare lists concerning Oil, Bran and Charcoal requirements.

Owing to high wages and better rice-rations offered by the different Military Departments, it is extremely difficult to engage labourers for our Department. In fact many of our labourers have left our Department to take up work elsewhere. At present only one coolie out of eight is remaining at the Bukit Timah Forest Reserves, and as he was also threatening to resign I have promised him a higher wage. Unless we promise higher wages for the Bukit Timah Forest Reserve patrol coolies, it is feared that the vacancies in the staff will not be filled and that, as a result, the Reserve will deteriorate considerably due to unwarranted cutting down of trees. It must be understood that, owing to a very high price offered for firewood in the market, the temptation to cut firewood in an unpatrolled forest may be irresistible to many a firewood dealer in the island. Che' Ngadiman reports that he has already seen some Chinese who had come to carry away dead firewood from the Reserves.

Despite these labour difficulties, however, attempts are being made to plant up the Sultana grounds with the different kinds of economic plants selected by Dr. Watanabe who will submit a report on the plantings separately. For this purpose we have been using some part-time workers working on a contract basis, also some female labourers recently engaged, and some temporary coolies supplied to us from the neighbouring gardens. A new gate has been opened up and a provisional road was marked.

During this month, oil, bran and charcoal were bought and distributed for the staff, Che Ahmat assisting me in this distribution.

2. Mr. Holttum's Botanical Work

Mr. Holttum continued work on his book dealing with Malayan Orchids. This work, begun a year ago, is now nearing completion. All native Malayan orchids have now been studied, so far as specimens available permit; the total number is 787. Descriptions of all these have been typed out, with keys to all genera. During the month Mr. Holttum revised and added to a general introduction to the book, compiled a general key to all Malayan Orchids, made various corrections to previous work, and made several new drawings. Further accounts of cultivation and the raising of seedlings have still to be written, and many more drawings are needed to illustrate the work fully.

3. Mr. Corner's Botanical Work

Mr. Corner commenced the preparation of a list of wild and cultivated plants on Syonan Island. He continued his researches on Malayan fungi and completed a large number of microscopical drawings. He also assisted Dr. Koriba in his studies of Malayan plants, in the collection of seeds and planting material and in the control of the Forest Reserves under the Botanical Garden.

4. Orchids

Two new hybrid seedlings flowered during the month. Vanda Miss Joaquim X caerulea (fifth seedling of this cross, a good one, to be propagated); Vanda spathulata X Arachnis Hookeriana (rather small yellow flowers, to be used for further breeding). A few new pollinations were made, owing to the flowering of species and hybrids which flower rarely; those used were Vanda tricolor var. purpurea, Vanda spathulata X Arachnis Hookeriana, Arachnis Waringyi X Vanda tricolor, and Phalaenopsis violacea X Amabilis. Four lots of new seeds were planted. The seedling cultures in flasks were maintained as usual.

5. Labelling and Indexing of Plants

Che Bajuri assisted Dr. Koriba in fixing more Japanese plant labels and in correcting some old ones. He made 45 new standard labels and reprinted 40 old ones. A number of aluminium labels were also made.

Mr. Lange continued his work on the lawn plans and index-cards, working on Lawn F.

6. General Work in Gardens

Grass-cutting. The two Dennis motor mowers were in use throughout the month, and hand-cutting was carried out in various areas as reported last month. Two Malay women assisted in sweeping cut grass and fallen leaves.

Fallen Trees. Three trees fell during storms and had to be cleared away: *Mischodon zeylanicum* on Lawn B, *Pygaeum polystachynus* at the back of the Crinum beds on Lawn N, and *Xanthophyllum macrocarpum* in the jungle beside Maranta Avenue. Two small trees had also to be felled on the edge of the Potting Yard, as they were overhanging the glass-houses.

Drains. Women were employed to clean and weed drains in various parts of the Gardens.

Lawn A. Canna and other beds were weeded twice and dead Canna flowers removed. Two young plants of the interesting Malayan tree Jackia ornata (collected last May by Dr. Koriba) were planted in the wet ground near the hedge.

Lawn B. Canna and other beds were weeded as on Lawn A.

Lawn H. 6 Acalypha plants in the Acalypha border were removed. Two Plumeria seedlings flowered for the first time, one a very bright red colour and worth propagating.

Lawn I. The Hibiscus beds were weeded.

Lawn O. The dwarf hedge round the bandstand was pruned, and gaps filled by new plants; the border all round the bandstand was replanted; other beds on Lawn O were replanted with Balsam and Cleome. The small plants above the low coral wall were replanted, and a few new ones added. Six seedling Jatropha were planted. Another Bougainvillea seedling flowered and was discarded.

Lawn X. The younger palms were weeded and fertilizer applied.

Lawn Z. The Bougainvillea seedlings near the Asst. Director's house were pruned and staked. None have yet flowered. Some seedling Hippeastrum bulbs produced flowers and were transplanted for propagation.

7. Potting Yard.

The roof of the lower glass-house was overhauled and made rain-proof; the glass in the top section of the upper house was removed, the timber renewed where necessary, and the glass replaced by galvanized iron sheets. This work was done by Mr. Chong Poh and Che Harun. Much further work on the upper house is necessary to make it rain-proof. At present it is unsatisfactory for the smaller orchid seedlings, which have had to be removed to the lower house.

The large-flowered New Guinea climber Mucuna Bennettii flowered for the second time (first in July) and made a fine display. It is one of the finest flowering climbers in the Gardens.

The following orchid and aroid plants were supplied for Military Headquarters:

Spathoglottis plicata
Arachnis Hookeriana X *Vanda suavis*
Dendrobium Pauline
Anthurium andraearum
Aglaonema costatum

Propagation. Mr. Alphonso returned to duty on the 11th and had charge of this and other work in the Potting Yard. Cuttings were made of: *Orthosiphon*, *Oleander*, *Jatropha pandurifolia* (pink variety), *Hibiscus mutabilis*, *Derris elliptica*, *Strophanthus*, *Ardisia*. Seeds were planted of: *Casuarina equisetifolia*, *Ragi*, *Millett*, & *Tithonia*. Plants of the following were potted: *Poinsebia*, *Oreodoxa*, *Ficus callicarpa*, *Dracaena*. The stock of potted plants was checked over and replanting done where possible. Two gardeners assisted in this work. The Chinese gardener continued propagation of *Begonias*, ferns and other pot-plants.

Weeding. Three women were employed in weeding.

8. Plant House

The flowering plants on the steps were changed three times during the month, new plants being brought from the Chinese Gardener's nursery.

SYONAN BOTANICAL GARDENS.

Monthly Report for November, 2603.

1. Dr. Furtado's report.

Che' Nur re-arranged 4702 sheets in the Herbarium, incorporating the Hong Kong specimens of the corresponding plant-families, namely, Convolvulaceae, Solanaceae, Scrophulariaceae, Orobanchaceae, Lentibulariae and Gesneraceae, and wrote 125 herbarium Index Cards for the new genera formerly not represented in our herbarium.

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The pot plants inside the houses were watered, cleaned and top-dressed regularly. Some of the hanging plants were re-potted.

9. Vegetable Gardens: Report by Mr. Lange

The following beds were reconditioned and planted with various crops:

- 6 of Bendi, Brinjals, Long Bean, Lobak
- 5 of Cucumber, Maize
- 3 of Yam Bean, Groundnut, Brassica
- 2 of Snake Gourd.

In Lawn P the different kinds of Radishes of Japanese origin are thriving very satisfactorily.

In Lawn R, 4 kinds of the American herbaceous annual cotton plants have been removed; with the advent of the rainy season they had made some new growth and were flowering quite well. The plants were 8 months old. At Dr. Watanabe's request Greater Yams and *Allium odorum* were grown in their place.

In the Nursery one particular type of Greater Yam, possibly from Serdang, has been shown to mature in 6 to 7 months over a period of 4 plantings. It has been decided to multiply this variety.

With the near exhaustion of artificial fertilizers the trial of sludge, as quick acting manure, is being substituted.

1.12.2603

昭南植物園月報

昭和十八年十一月分

惜葉室

本月に四千七百の枚標本は整理せらる。香港の部に入る標本は次の如し。

- コンゴイルグイニセイ (Convolvulaceae)
- ソニンセイ (Solanaeae)
- シコロフニリエセイ (Scrophulariaceae)
- オロブンチセイ (Crotalariae)
- レンチーニリエイ (Lentibulariaceae)
- ゴスネニセイ (Gesneriaceae)

本日、百六十五枚標本の目録カードを製作ス。五ツ目高の園と三枚野菜の園を製ス。四百可食の雑草の標本を製ス。又酒精入る標本を製ス。日工の爲に七十六種物の名稱を説明ス。

三科學子教科書目録をライブラリーに写ス。

園内の蘭類專家は馬來亞の蘭類の研究爲に此の研究の經過を著作ス。此の著作は一年前に作られ、迄先成は寄セタ。唯今馬來亞の蘭七百八十七種類

の研究 蘭や野生の或栽培の植物

栽培場

第一棟と第二棟が工場の屋根
は修繕せらる。

二ユーギニア産の攀縁植物(ムクナベンネテ
Mucuna Benetti)第一回咲き。第一回咲
左時は本年七月なり。其の花は
綺麗なり。

後記の蘭の植物は單本部ニ進呈せらる。

- 一. ムパテオクロチス (Spathoglottis plicata)
- 一. アラクニス (Arachnis Hookeriana) 花種
- 一. アンテカリム (Anthurium aracaense)
- 一. アグニオネア (Aglaonema costatum)
- 一. デンドロビム (Dendrobium)

本月中に色々植物繁殖の爲に数人の植
物長を取り切り土に廻す

陳列場

場の前の階段の上の鉢植は本月中
三週に換せらる。

野菜栽培の研究

左記の野菜栽培の實驗也

- 一. 日本産の大根
- 一. 色々豆類 (Orange)
- 一. ナシ
- 一. 胡瓜
- 一. 玉蜀黍
- 一. 沙葛
- 一. 南京豆
- 一. 錫蘭莧 (Brassica)
- 一. 冬瓜 (胡蘆瓜)

7 有用植物園の開墾

渡邊學士の指導、下有用植物園開墾
は成功あり。種々有用植物は此處
殖ふ。

一 概園の工作
其の概概は左の通り

- 一 園内芝生は自動刈草機で刈る。
- 一 園内樹木を伐り倒す。
- 一 溝道の雑草を除去する。
- 一 植物に肥料を

9 雑項

本月に新に混入種の蘭ニツク咲く。四十五
枚謝物名物を製し、半枚古の方を
は直す。

備考

記事

- 一 一ルタド学士は有用植物園開墾、為に
渡邊学士ニ
本月十五日、渡邊代し一ルタドは御一考に
一 一レバニニ、出張、これに百七種
を稱す軍部等に説明す。
- 一 昭南島ブーキトナマ森林保留區(全部
常備者カハ入士リ七)は退去候。
唯一人ガナあり、此水故に其ノ一人
の日給料を毎日壹圓迄降す。

昭和十一年十月八日
 昭和十一年十月八日
 昭和十一年十月八日

踏査室

管理員は本月中に大概の酒精入
 本類の種本四百枚を製成す
 本類中は左記の種、均して六十、或百九十枚

- ★アサキクハシ ㊦㊦ (Apoynaceae)
- トクダ ㊦㊦ (Asclepiadaceae)
- マサノ ㊦㊦ (Loganiaceae)
- シソトハ ㊦㊦ (Menthanaceae)
- ムラサキ ㊦㊦ (Brassicaceae)
- ヒルカガ ㊦㊦ (Convolvulaceae)
- 大木科
- 田所科
- 馬錢科
- 龍膽科
- 紫草科
- 建蘭科

種別不明の種は、本月中に概して製成す。
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教科書の室

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植物の室

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... 月 ... 米 ... 中 ... 成 ... 力 ... 不 ... 様
 ... 様 ... 日 ... 本 ... 種 ... 今 ...
 ... 法 ... 種 ... 運 ... 訓 ...
 ... 米 ... 日 ... 給 ... 米 ... 米 ... 米 ...
 ... 此 ... 題 ... 米 ... 米 ... 米 ...
 ... 付 ... 存 ...

(25)

SYONAN BOTANICAL GARDENS.

Monthly Report for December, 2603.

1. Dr. Furtado's report

(a) Botanic Gardens

Che' Nur rearranged 5,818 specimens in the general herbarium inserting in it also the specimens from the Hong Kong herbarium. The plant families concerned are Bignoniaceae, Pedalinea, Acanthaceae, Myoporineae, Selagineae, Verbenaceae & Labiatae. He also helped Dr. Watanabe in naming some plants.

Che' Kiah mended 112 specimens from the Hong Kong herbarium and inserted from this herbarium into the general herbarium 738 genera covers together with species sheets. He also helped Dr. Watanabe in collecting some planting material and in drying some plant material to be submitted for medical analyses or experiments.

Mr. Furtado helped the Nipponese officers in the general administration of the Department. He supplied Malay & Javanese names to many plants which are listed as edible in the Military and other books prepared in Nippon. He also prepared for the proposed Flora of Syonan a list of Aroids g found wild or in common cultivation in Syonan. In the company of Che' Nur, Dr. Furtado helped Dr. Watanabe to name 120 plants for the Tsukasa Butai in Katong. An interesting specimen among the dried herbs received for naming was the South African Barosma crenata, a species never before recorded to have been imported in Syonan, though it is mentioned as a diuretic herbal in some Pharmacopoeias.

A number of plants were dried and given to the Medicine Butai for analysis or experiments. Among these were included Gloriosa superba, Calotropis gigantia, Tithonia diversifolia.

Dr. Furtado accompanied Mr. Sudo and brought about 5,000 herbarium specimens from the Custodian of Enemy Property. All these specimens belonged to the Nipponese Mr. Z. Teruya who had, prior to the war, devoted intelligently his leisure in collecting in the Malaysian regions and in building up a small private herbarium of his own. These specimens form, therefore, a very valuable addition to the Syonan herbarium wherein they will be gradually incorporated. In view of the fact that in Syonan such herbarium collections easily become mouldy or get attacked by insects unless specially preserved and kept very dry, and that Mr. Teruya's collections, though not specially protected, were neither mouldy nor attacked by insects, a surmise is made that the good condition of the collection was due to the French chalk which had accidentally fallen all over the specimens in the store. Hence, thanks to the kindness of the Custodian of Enemy Property, some French chalk has been obtained and is being now tried on the numerous unmounted specimens which, in the absence of any preservative, we find difficult to keep in good condition.

In the company of Dr. Watanabe, Dr. Furtado located in the compound of the Kramat at Rangoon Road an arboreous Calotropis gigantia having a stem about 20-25 cm. in diameter.

With the assistance of Mr. T. da Costa the Veterinary Officer of the Tokubetusi, Dr. Furtado selected 4 bullocks for the Gardens' Department. If the scheme matures, it is thought to use ploughs, rather than manual labour, in tilling some of the lands in the Economic Gardens. It is hoped that by this means the difficulty of getting manual labour will be decreased considerably.

As ploughs are not locally obtainable, the Gardens carpenter was shown the models at the Museum so that he may construct ploughs suitable to the Gardens' needs. At present only one plough has

been completed.

A short cut path for motor cars leading from the office to the Main Gate was marked on the turf on the boundary of Lawns B & C, and small culverts have now been built so that the path is now usable by cars on dry days.

Dr. Furtado arranged for the distribution of oil for the coolies and other members of the Gardens' Department. It was not possible to obtain bran and charcoal rations this month.

Since food hawkers have become extremely rare in the vicinity of the Gardens and since it was impossible to buy loaves of bread except at exorbitant prices, an arrangement has now been made to obtain 150 loaves of bread and distribute them at cost price to the Gardens Staff.

Che'A. Wahab carried on with the usual clerical routine of the office. Special items in this month were the distribution to the daily paid workers of special metal badges obtained from the Tokmetusi. Some of the coolies who formerly received monthly salary then had rectangular badges and who have now received round badges have become dissatisfied. Rectangular badge is considered as more honorific than the round one worn by ordinary coolies.

Mr. A. Especkerman typed 40 sheets of the Flora of Syonan, 75 sheets of the Library Index, and assisted in preparing the lists for Bread and Bran, and also in receiving and returning the Provision Cards of the Staff. He also helped visitors in the Library.

(b) Economic Gardens

The Economic Gardens in the Sultana is rapidly developing despite labour difficulties. During the last two months the following plants have been planted or sown:-

- (1) Cotton Plants (Gossypium spp) about 1,000 plants
- (2) Derris elliptica (Tuba) about 1,000 cuttings.
- (3) Gloriosa superba 4 long beds (each long bed 6 m. X 1.20)
- (4) Aganosma marginata 8 short beds (one short bed contains 1-4 plants.
- (5) Indigofera anil seeds sown in 23 long beds
- (6) Andrographis paniculata 17 small beds
- (7) Recinus communis 600 small beds
- (8) Hibiscus radiatus 3 long beds
- (9) Coreliorus capsularis 7 long beds
- (10) Cannabis sativa 12 long beds
- (11) Hibiscus sabdariffa var. Altissimus 6 long beds
- (12) Cassia leschenaultiana 5 long beds
- (13) Cassia mimosoides 1 long bed
- (14) Adathoda vasica 21 small beds
- (15) Holarrhena antidysenterica 10 small beds
- (16) Glycine max 10 long beds
- (17) Cassia occidentalis 2 long beds

- (18) Cassia tora 2 long beds
- (19) Sesbana Sesban 2 long beds
- (20) Arachis hypogaea 3 long beds
- (21) Tithonia diversifolia about 450 plants
- (22) Orthosiphon stamineus about 800 plants
- (23) Tinospora cordifolia 72 plants

There are still a large number of beds ready for receiving plants which are being propagated in the potting yard or elsewhere.

Owing to the shortage of labour the original plan of keeping together plants of the same natural order or having the same or similar uses has been provisionally abandoned and plantings are done in places where they can be easily tended at present.

(c) L a b o u r

The rapid increase in the planting in the Sultana is creating a serious problem as to its maintenance, necessitating thereby the transference of the permanent labour from the Botanic Gardens to the Economic Gardens, and if facilities are not forthcoming to recruit more coolies under more favourable conditions, the time will soon come when many of the areas in the Botanic Gardens will have to be allowed to be weedy and unsightly in order to transfer the needed labour to the Economic Gardens.

Further the present policy of giving special recommendation and privileges to the workers in the Economic Gardens will have to be reconsidered as it is likely to create serious troubles in the general labour force. The transference of the labourers to the Economic Gardens has now been made, not according to their special abilities, but according to the present needs of the Economic Gardens; in future as the plantings extend and the labour force also increases, men of different abilities may be needed. The fact that some persons have now shown proficiency in the particular work entrusted to them does not mean that they are better and abler than all the others in the Department. Hence in recommending promotion the labour force of the entire Department should be considered as a whole and not of the Economic Gardens alone.

Failure to look to this aspect may cause the claims of the ablest and the best men deserving of promotion to be overlooked, and may create serious difficulties in the near future. It must be remembered that the Department is running short of labourers and that there is already discontent among them due to their low wages and low rice rations. In view of the facts that the labourers in the different Butais in the neighbourhood of the Gardens receive better rice-rations and better wages and shorter hours of work and that the Gardens' Department pay better wages to the temporary labourers, the coolies are likely to imagine that their superiors do not care for them, or do not try to remove their grievances. Hence one has to be careful not to take any action which will aggravate the matter.

Some time back, for instance, when the wages were readjusted according to the new regulations, many coolies came in numbers to complain against what they considered the disparity in the readjustment, and some went so far as to tender their resignations. Some irresponsible and senseless talks may have also contributed to bring about this antagonistic attitude among the coolies. If measures were not taken immediately to prevent the extension of this tense state of affairs, we might have had serious difficulties with our labour force. To pacify the coolies it was also necessary for Mr. Oshima to speak to them and to explain to them what the Department has been doing in

order to improve their wages and rations.

It is also hoped that the Gardens' Department will be empowered to pay the permanent male labourers about 85 cents to \$1 a day according to the skill and ability of the individual labourer and to give them extra rice rations such as are given to the hard workers in the other Department. Further, it is hoped that the Department will be able to put up some new houses or make habitable the wooden barracks in the Sultana so that the offers of free quarters may prove an inducement for more coolies to come to work for the Gardens.

2. Mr. Holttum's Botanical Work

Mr. Holttum wrote sections on cultivation of orchids and on orchid seedlings for his book on orchids in Malaya. In this he was assisted by Mr. Livingston. He also wrote latin diagnoses of all new species (17) discovered in his work on Malayan Orchids, typed out the card index of species and synonyms with bibliographic references (written 1,000 entries), and made a few new drawings of plants in flower. Having completed, so far as possible, the work on orchids, Mr. Holttum began to study the Ginger family, an important and difficult family of which there is no satisfactory account in Malaya. He studied the living plants of this family in the Gardens as a preliminary to further work on herbarium specimens.

3. Mr. Corner's Botanical Work

Mr. Corner continued with his work on the list of wild and cultivated plants on Syonan Island. He further continued his researches on Malayan fungi and completed a large number of microscopical drawings. He also assisted Dr. Koriba in his studies of Malayan plants, in the collection of seeds and planting material and in the control of the Forest Reserves under the Botanical Garden.

4. General Work in Botanic Gardens

Grass-Cutting was continued as last month: some areas (parts of lawns Z, F, K & L) cannot be dealt with owing to shortage of staff and the continued absence of the small motor mower on repair.

Weeding was continued in the neighbourhood of Main Gate Road and Office Ring Road. All Canna beds and other beds in lawns A & B were weeded and the Cannas regularly pruned of dead stems. Nearly all beds on Lawn D were weeded and compost added, and some beds in Lawn E. The rockery in Lawn E was weeded. Work on cleaning and manuring young palms in lawn X continued. Almost all the work was done by women.

Bandstand Hill. ~~Regular~~ Maintenance continued as usual. The paths and drains were weeded by women, and one man was employed in cleaning beds, planting etc.

Planting. Two Plumeria seedlings were added to the Plumeria collection on lawn J. One plant of Mucuna Bennettii was planted so that it will climb on a large Eugenia tree by the edge of the lake (west side). One plant of Jackia ornata was planted in the Dell at the head of the lake.

5. Plant House

Three hybrid Ixora seedlings, and some Pittonia and Begonia plants were planted in the border of the small plant house. The plants in the houses were tended as usual; those on the steps were changed once only, owing to the lorry being needed for other work.

6. Potting Yard

General maintenance (weeding, watering, sweeping etc.) was carried out as usual.

Shed. The following seeds were planted:-

Hibiscus manihot, Rambutan capri, Tobacco, Blumea, Aeschynomene, Brucea sumatrana.

✎ Cuttings were made as follows:-

Hibiscus mutabilis, Derris eliptica, Rhododendron, strophanthus dichotomus, Strophanthus Petersianus, Embelia ribes, Pisonia alba, Calotropis gigantea, Bougainvillea Mrs. Butt.

The following plants were potted:-

Fittonia, Orthosiphon stamineus, Lettuce, lagerstroemia, Ficus irregularis, Khretia microphylla, Pseuderanthemum (white), Andrographis paniculata, Acalypha.

In addition certain palms and most of the aroides were cut back, propagated and potted. A few aerial orchids were furnished with new fern roots.

Glass House. A number of begonias were propagated and many ferns were potted. Experimental potting of begonias in mixed brick, fern root and burnt earth shows signs of success.

Applications of artificial manure to most of the plants in the Yard and certain plants in the Glass House was carried out.

Plants taken for planting from the Yard included some 1,000 Orthosiphon staminens, 13 Adhatoda, sp, 1 Jackia, 1 Mucuna sp, 1 Oncosperme sp. 4 Holarrhena antidysenterica, 3 Ixoras & 6 Rhaps flabella formis.

The plant of Mucuna Bennetti flowered finely for the third time. No fruits have been produced. It is therefore necessary to try to propagate this beautiful plant from cuttings; cuttings were taken at the end of the month.

7. Vegetable Gardens: Report by Mr. Lange

Many beds were reconditioned for the reception of new crops, as follows:

- 4 beds each - Brinjal, Bendi, Maize, Long Beans, Bayam, Cucumber.
- 3 " " - Chinese Lobak, Chinese Brassica and Maize.

In the nursery a few beds were limed for the first time in many years. An experiment on Sweet Potato was concluded and notes compiled.

In Lawn R Dr. Watanabe planted some beds with weeds of economic interest. Also all the shapely Casuarina Sumatrana plants were potted for the Japanese Festive Season.

In Lawn P, 2 sections were excavated to a depth of 2 feet with the purpose of bringing fresh sub-soil to the top and sour spent soil to the bottom. This was necessary as lime was needed for the nursery where such an operation of excavation would be impossible because of the high water level. Consequently there was a sharp decrease in the harvest from Lawn P.

An experiment on the deterioration of local cucumber was continued, and observations recorded. Similarly an experiment of the same nature on the Chinese Brassica (Teow-Chew Choy Sam) was also conducted. It is hoped that some notes will be made after a few more experiments.

C. Lange
31.12.2603.