

(1) Number of pages 28
(2) Date of repair 20.10.54
(3) Initials of the Referencer WJ

MADRAS RECORD OFFICE

Government of Madras

Revenue

DEPARTMENT

G.O. No.	<u>433</u>	Press
~~B.P. No.~~		~~MIS.~~
Dated	<u>15th April 1955</u>	<u>1885</u>

Original

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10. I have put the scientific aspect of a Government Botanical Establishment to the front, because it is the solid and rational foundation of all the rest of its work. The general consensus of all civilized practice has almost always, however associated with scientific botanical work, other duties of a more practical and administrative kind. Besides a herbarium or *Hortus Siccus*, by reference to which the names of plants can be determined, it has been the custom that a botanic garden or collection of living plants should be an integral part of such an establishment. From this it flows naturally that a botanic garden will, in a country like India, be the centre at which new experimental cultures will be started and new cultural industries called into existence. Thus India owes in great part to the Calcutta Botanic Garden its great cinchona enterprise and to Saharanpore the practical inception of tea cultivation, though the initiatory stages must be credited to the Calcutta botanists.

11. I may now attempt to define, or at any rate illustrate, more precisely the actual functions of a botanical establishment:—

- I. It will occupy itself with obtaining an accurate and scientific knowledge of the flora of its sphere of operations. This knowledge will be laid up, so to speak, in its official name of any tree or plant which for any reason excites the interest or curiosity of any Government officer in the course of his duty.
- II. It may be asked why should any one want to know the scientific name of a plant. Simply because vernacular names are numerous, loose in their application, and not current beyond their own localities. A scientific name has universal currency and is therefore the key of knowledge to information relating to the plant that bears it in any civilized language. It is true that a few vernacular names, such as Sal and Teak, become so completely and exactly limited in their connotation as to be as good as scientific names and to take their place. But the number of such cases is very few. Take Ebony for example; this means at least half-a-dozen quite distinct trees in general and no one in particular. If a name, such as Iron-wood, of even wider application is tried, it is found to be perfectly impossible to fix it in any way whatever. But botanical names have a further advantage. Behind them is always a diagnostic description by which at need the proper application of the name can be tested. Thus when the disquieting statement was made that the Red Bark (*Cinchona succirubra*) grown on the Nilgiris was really the less valuable Grey Bark (*Cinchona micrantha*), His Excellency the Governor himself was readily able to dissipate the scare by the simple process of comparing the trees in the plantations with a technical description. Besides the herbarium, there should be in the botanic garden of the establishment a good named collection of the most interesting trees and plants of the country and such others of exotic origin as are adapted to its climate and desirable to introduce. Actual visual experience is after all the easiest way of learning, and the presence of an interesting tree or plant in a botanic garden is the most direct way of introducing it to the notice of the inhabitants.
- IV. The cultivation of useful plants will naturally bring to the establishment correspondence and inquiries about these and others. It will therefore assume—if properly worked—in course of time the character of a kind of Botanical Intelligence Department.
- V. The effective discharge of its duties in this as well as in the more strictly scientific directions will naturally lead to correspondence with similar home, colonial, and foreign institutions. It will confer and reciprocate the advantage of exchanges. There is perhaps no line of official work in which there is a more helpful intercourse between the scattered members of the imperial body than is afforded by botanical business. If Jamaica was in want of the most authentic strain of Black Pepper, it was only necessary to invoke, through Kew, the aid of His Excellency the Governor to secure a good supply of the much-prized Malabar kind.
12. Hitherto there has been nothing precisely and collectively answering to a Botanical Department fulfilling the functions indicated above in the Madras Presidency. That one was needed, however, has long been apparent at Kew from the numerous communications, both public and private, relating to the practical as well as the scientific side of botanical business.
13. The materials for such a department are however all to hand, and a little organization would practically effect all that is needed.
14. *Director.*—Mr. Lawson, late Professor of Botany in the University of Oxford, accepted the appointment of Superintendent of Cinchona Plantations (G.O., October 14th, 1882, No. 1116). He was further directed (G.O., April 14th, 1883, No. 443,) to take charge of the Government Botanical Parks and Gardens, and subsequently (G.O., August 15th, 1883, No. 987,) was designated Director of Government Cinchona Plantations, Parks and Gardens, Nilgiris. He made (August 19th) a preliminary report and (September 15th, 1884,) issued as Director the annual report. As regards a head for the department, a very slight extension of Mr. Lawson's duties is all that is required.
15. *Botanic Garden.*—The situation is not complicated by the existence of any Government Botanical Garden at Madras. The existing Government Garden at Ootacamund seems in every way the proper seat of the Botanical Department of the presidency. If its remoteness from the official capital is deemed objectionable, it may be pointed out that in the cases of Jamaica and Ceylon similar remoteness is no bar to great activity and has many compensating advantages. The planting industries of Southern India gravitate to its western side, and the botanical headquarters should be in the nearest feasible proximity to them. During the short time Mr. Lawson has been in charge he has succeeded in picking up the existing threads in the establishment of botanico-economic work and has reported upon them with precision and ability. We may confidently, I think, look to him for future reports, which will be inferior

to those of no botanical establishment of the Empire for interest and usefulness. The detailed administration of the Botanic Garden will always require a Curator subordinate to the Director. Mr. Lawson has the advantage of the cordial co-operation of Mr. Jamieson, who has long efficiently filled this position.

16. *Dependent Establishments.*—In order to extract the maximum of usefulness from a tropical Botanical Department, it is found necessary that it should comprise a chain of gardens at different elevations as in Ceylon and Jamaica. Ootacamund will, therefore, require to be supplemented by—

- I. *An Intermediate Garden.*—Mr. Lawson apparently has this in view in his proposal with regard to Gúdálúr, where "Government would be able to grow successfully many plants, especially palms, which they cannot grow now in any of their other gardens."
- II. *A Tropical Garden.*—This already exists at Barliyér. This must be an exceptionally favored spot for cultural purposes. The Mangosteen fruits here alone in British India *Amherstia nobilis* has flowered. *Cacao* ripens its fruits (Report 1881-82). *Ipecacuanha*, under Mr. Lawson's directions, progresses. It seeded here for the first time in India (Report 1882-83). *Liberian coffee* was fruiting freely (His Excellency the Governor's Minute, pp. 9-11). *Castilloa* is successfully established (Report 1882-83). Mr. Lawson (August 19th, 1883,) described the garden as "a deadly excavation in a deadly ghât," but subsequently (Report 1883-84) he "cannot help thinking that the unwholesomeness of the place has been exaggerated," and considers "this garden for its size to be the most important one which the Government possesses on the slopes of the Nilgiri plateau." I have no doubt that Mr. Lawson's more matured opinion is the correct one. Unhealthiness judged by the European standard is part of the price which has always to be paid for the cultural advantages of a tropical garden. And in our experience the tropical dependence of a Botanical Department is always complained of in this way.
- III. *A variety of other Parks and Gardens* would, as at present, continue to be under the Director's charge. A similar arrangement works well in Jamaica and elsewhere. But it should be regarded merely as one of administrative convenience, and the botanical work proper should as far as possible be concentrated in its own seat.

17. *Herbarium.*—A thoroughly worked up and named collection of the plants of the Peninsula must, from what I have already said, be an indispensable feature in the organization of the department. It should not merely be the standard of reference for the department, but the official Government herbarium of the presidency. I think I may assume without argument what every civilized Government now admits that the study of the natural features and productions of the country it administers is one of its obvious duties. It must, I think, be also allowed that Madras has very imperfectly so far recognized this. The bulk of our knowledge, still confessedly most imperfect, of the botany of the southern portion of the Peninsula is due to the unofficial labors of two distinguished Botanists—Doctor Wight and Colonel Beddome. The existing Government herbarium is preserved in the Government Central Museum, Madras. It comprises the important collections of Colonel Beddome, which, I believe, were purchased by the Government. Mr. Lawson has inspected the herbarium and reports, "the specimens are in excellent order. The sheets on which they are fastened are free from dust, and there is no trace of the plants ever having been attacked by insects." It is clear, therefore, that it has been admirably conserved. But I understand that the plants are kept tied up in bundles in drawers and the genera arranged * alphabetically, while the plants of separate collections have been kept distinct. These facts, if true, tell their own story; they prove that the herbarium cannot have been much used at Madras for scientific purposes. Now a herbarium is after all an instrument which it is little use keeping, however carefully in its case. To be efficient, it requires the living presence of a skilled botanist who is constantly using it, noting its defects, and sparing no pains to make it perfect. I am far from wishing or intending in the remotest degree to reflect on Dr. Bidie. It is only necessary to refer to his reports to wonder how he can possibly manage to carry on single-handed so successfully all the lines of work comprised in the museum under his charge. Mr. Lawson with characteristic activity has set to work to create a herbarium at Ootacamund. In his tour, accompanying His Excellency through the Anaimalais, he made large collections (Minute, October 3, 1884); as detailed in his (1883-84) report, he has had liberal assistance from other quarters. He has got together some 4,000† species, "the most part of which are correctly named." Some help in this respect has been rendered from Kew.

The herbarium under Dr. Bidie's charge has been reinforced on the other hand with upwards of 4,000 sheets from Dr. Wight's invaluable herbarium, which has been presented to the Royal Gardens as a private gift. Other contributions have also been made. Now I

* This is no longer the case. They have been carefully arranged according to the *Flora Indica* so far as that work has gone.—M.G.D.
† Many more—and as a pure labor of love.—M.G.D.

cannot see the use of the Government running, as is now practically the case, two independent State herbaria. What it possesses in this direction should, in my opinion, be concentrated where it is most wanted and will be most used, namely—in connection with the proposed Botanical Department at Ootacamund. I would recommend, therefore, that the necessary steps be taken to transfer to Mr. Lawson's charge the Government herbarium from the Central Museum, Madras, and this, with the collections he has made and will continue to make, should be housed in a proper building.* In return Mr. Lawson should be instructed to have prepared a mounted set of authentically named and typical representatives of the Peninsula flora, which might, as heretofore, serve as a standard of reference for residents in Madras who wish to identify their plants.

This being arranged, it should be the business of the Botanical Department, with the necessary Government authorization put formally on record and with the recognized assistance of the Forest Department, to push on the scientific investigation of the Flora of Southern India. The department should be in constant correspondence with the Central Imperial Indian Herbarium at Calcutta. It should charge itself, in fact, with the adequate performance of its share of the systematic botanical survey of India. To further this end the Madras Government should be prepared to make a small annual grant for the maintenance of collectors in districts of which the vegetation is still imperfectly known, more especially in the contiguous Native States. The flora of the apices of all peninsulas is always peculiar and interesting. Some of the most important problems in the geographical botany of India still await their final solution pending the investigation of the outlying parts of Southern India. The department would take care to furnish Calcutta and Kew with sets of their new collections. Both would reciprocate by donations from their duplicates, and Kew would furnish the elucidation of the freshest modern botanical scholarship. The Botanical Department would on this ground alone speedily attain a scientific position and reputation, and the Madras Government, by giving its countenance to the work, would remove from itself the reproach under which it undoubtedly at present labors of having done nothing officially for the botanical investigation of the countries under its rule, or of having materially contributed anything to aid in the preparation of the Flora of British India now in preparation at Kew under the authority of the Secretary of State.

18. *Museum*.—Mr. Lawson has got together "a small collection of woods, fruits, seeds, and other vegetable products of economic interest to those living on the Nilgiri plateau." Such a collection is an indispensable adjunct to the department. It should not, however, be a showy or expensively installed collection for public display. The proper seat for this would be the Central Museum under Dr. Bidie's charge at Madras. But it should be a working series illustrative of the business and communications on economic subjects passing through the Director's office. Recent correspondence, for example, with regard to Piney Tallow has shown that even in the presidency itself the history of its botanic economies is very imperfectly known. As each subject is from time to time worked up, the specimens illustrating it, carefully and properly authenticated, should be preserved for future information and reference. The same museum like the herbarium might, with a proper official understanding, subserve the purposes of the Forest Department, and that department might with great propriety make some small annual contribution in respect of the maintenance of both.

19. *Library*.—It is obviously unwise economy to refuse a competent man the needful appliances for his work. A small, but carefully selected, library should gradually be brought together, which should comprise all the leading books on Indian botany, especially such as are cited in the "Flora of British India." To those should be added all works useful for reference bearing on the actual or possible cultural industries of Southern India. The library, being an office library, should be in the same building as the Director's office and at no great distance from the herbarium and museum.

20. *Correspondence and Archives*.—The great thing in administrative existence is to deal with a subject when it arises effectively and once for all. What strikes me, as I believe it has struck others, in connection with Indian work is the perpetual and recurrent oblivion of the past. Correspondents constantly write to Kew from Southern India as if the country had only recently been rescued from the deepest obscurity, and this is true, not merely of private individuals on their own behalf, but of representatives of large enterprises whom it might have been supposed would have mastered the A B C of their business before plunging into its actual inception. It seems absurd that practical men should constantly prefer to write *Homo* rather than to utilize sources of information available on the spot. What then is imperatively needed is, in connection with the botanical establishment, a sort of intelligence department in which all available information on any subject likely to interest the planting or industrial communities should be systematically posted up and filed. This is done at Kew in simple self-defence. When the routine correspondence is examined each morning, it is impossible to predict from what quarter of the world or upon what subject an inquiry may present itself. It is necessary

* The climate of Ootacamund is better for the conservation of plants than that of Madras—perhaps even than that of England. The old laboratory can be adapted for a very small sum.—M G D

then to have the materials for such inquiries cut and dried in advance. And the same system, to meet in degree the same need, is required at every botanical centre. As soon as it is known throughout the presidency that there is an officer with the necessary means of information prepared to deal with reasonable inquiries, there is no probability that his services will not be put in requisition. The annual reports of the department should briefly touch on any subjects which have been brought under its notice and occupied its attention during the year. Records should also be given of the progress of interesting plants entrusted to planters and others in different parts of the Presidency for experimental purposes. In the Botanical Department in Jamaica and to a less extent elsewhere it is found convenient to prepare and issue from time to time for general information a carefully prepared *précis* on any subject on which for the moment more than ordinary interest is manifested. Of course when the more trivial matters are filtered out and dealt with, the more difficult may, either officially or semi-officially, always be referred to Kew for the best available Home scientific examination and report.

The routine Government papers relating to botanical matters, which are from time to time issued by the Madras Government, and of which it has for some time been so obliging as to furnish Kew with copies, will afford an admirable nucleus for the Director's archives. It is a matter of constant surprise to me how admirably served the Government is even with the present system. But the information does not appear to me to permeate, and it is to facilitate this that the arrangement I now propose is directed.

21. I have now dealt with all that appears to me material relating to the organization of the department. I observe, however, that in his letter of August 19th, 1883, and report for 1883-84, the Director recommends that an extended series of meteorological observations should be undertaken by his department. This, from what I have observed elsewhere, I venture to think unadvisable. Such observations should, of course, be taken on the Nilgiri plateau. But meteorology has now passed out of the amateurish stage. If undertaken by the Government, as is certainly proper, it should be with the best methods and in harmony with the work of other meteorological stations throughout the Empire. It is not within my province to say what department of the executive should be charged with this duty. But I am quite clear that it is unadvisable for the Botanical Department to burden itself with what is in no way within its proper scope.

Arrangements might, however, very properly be made for posting the daily meteorological data at the entrance of the Botanical Garden.

22. The suggestions I have made will involve some immediate expenditure. The Madras Government has however, I believe, earned large sums by the cultivation of cinchona. Supposing that the proposals I have made commend themselves to His Excellency's Government, then I think there is a strong case for a *fix*, but in no way extravagant, outlay to put the new department on a proper working footing. And I here feel bound to point out, though entirely on my own initiative, that the salary and position of the Director will require consideration. Mr. Lawson was presented to the India Office for his present appointment in reply to an official communication of May 6th, 1882, in which "the services of a person of good scientific attainments and botanical experience together with some administrative capacity" were asked for "to take charge of the Government Cinchona Plantations on the Nilgiris." For this a salary of Rs. 600 a month was offered. Now Mr. Lawson's official duties were very speedily extended, and in all probability they will be still more so. I am quite sure that the Madras Government, on general grounds, will not be satisfied that a salary which it deemed proper for one set of duties should still be held sufficient when these are very considerably added to.

24. *Agri-Horticultural Society, Madras*.—This is the only Botanical Garden in the plains of Southern India and, though subsidized by the Government, is not under its control. Founded in 1835, its establishment and early management owed everything to its first Secretary, Dr. Wight. The Government granted it 7 acres of land, to which an extension was sanctioned in 1855. From a sketch of the history of the Society drawn up by Dr. Bidie in 1869, it is abundantly evident that its operations have been of the greatest usefulness to the Madras Presidency. To its experiments in 1840 may be attributed the introduction of coffee cultivation. This is merely to cite one instance; but, if it had done nothing more than encourage the cultivation of European vegetables and of indigenous and naturalized fruits of superior quality, it would have earned the lasting gratitude of the community. It is much to be regretted that in more recent years the more scientific aspects of the garden seem to have been sacrificed with little consideration. That, however, is a matter upon which, as a private institution, the Society is entitled to judge for itself. At Kew we can only measure its activity by its proceedings, which certainly, for quick appreciation of the wants of the moment and careful editing, are not surpassed by anything of the kind published in India. The operations of the Society would not, I think, be interfered with by that of the Botanical Department which I have proposed. On the contrary I think that relations of the most friendly kind should always be cultivated between them. Furthermore, in consideration of the support which

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Government extends to the Society, I think it might be fairly asked to act as agent to the department and undertake to receive and transmit its consignments of plants from and to other countries.

25. For the sake of directness of expression I have written this memorandum in the first person. Sir Joseph Hooker, however, authorized me to say that, having given his best attention to the matter, all that I have written has his entire concurrence.

Kew;
10th February 1885.

W. T. THISELTON DYER.

ORDER—dated 15th April 1885, No. 433, Revenue.

Miscellaneous.

His Excellency the Governor in Council cordially approves, and is much indebted for, the suggestions for the constitution of a Government Botanical Department in this Presidency, which have been put forward by Mr. Thiselton Dyer with the concurrence of Sir Joseph Hooker. The measure will, besides subserving the interests of science, be of great and immediate practical utility, while it can in present circumstances be carried into effect at a very small cost to Provincial Funds, to which it is hoped the sanction of the Government of India and of Her Majesty's Secretary of State will be readily accorded.

2. Mr. Lawson will, of course, be the head of the new department, and his pay should, in the opinion of Government, be raised from Rs. 600 to Rs. 800 per mensem, rising to Rs. 1,000 in five years. He is serving at present under no definite conditions, and the Government consider that his service from the commencement should be declared to count for leave and pension, and that he should be admitted to the benefit of the more favorable leave rules. Application will be made in the Financial Department for sanction to these proposals.

3. Under the new arrangement, Mr. Lawson will retain charge of the Cinchona plantations and the superintendence of the Botanical Gardens and Parks on the Nilgiris as at present. His official designation will be Government Botanist and Director of Cinchona Plantations.

4. On receipt of sanction, orders will issue on the minor points of organization noted in Mr. Thiselton Dyer's memorandum.

(True Extract.)

(Signed) W. WILSON,
Ag. Secretary to Government.

To the Financial Department.
" the Director, Government Cinchona Plantations, Parks and Gardens, Nilgiris.
" the Superintendent, Government Central Museum.
" the Board of Revenue.
" the Director of Revenue Settlement and Agriculture.
" the Superintendent, Revenue Survey.
" the Inam Commissioner.
" the Public Department.
" the Military Department.
" the Public Works Department.
" the Accountant-General.

Exd. W. H. French.

150 Copies.

MINUTE BY HIS EXCELLENCY THE GOVERNOR.

I circulate to my honorable colleagues a memorandum received by last mail on the constitution of a Botanical Department at Madras, drawn up by Mr. Thiselton Dyer, C.M.G., and, as will be seen from the last paragraph, expressing, not only his own views, but those of Sir Joseph Hooker, K.C.S.I.,—far the greatest authority on systematic botany now living.

2. The memorandum touches on one or two subjects on which it is unnecessary for us just now to express any opinion—e.g., on cinchona plantations and the policy to be pursued with respect to these—but I do not at present print the section which deals with this matter; and, in so far as the memorandum relates to the formation of a Botanical Department here, I agree with every word of it—agree so completely that I have really nothing more to say on the subject, at this stage, beyond what I have added in one or two foot-notes.

3. Mr. Dyer was evidently not aware when he wrote his paper that Dr. Bidie had been promoted and now only takes charge of the museum till his successor is appointed. This will facilitate the incorporation of the herbarium now in the museum with that which Mr. Lawson has been creating at Ootacamund.

4. A smaller herbarium—one sufficient for the use of all but regular botanical students—should continue, of course, to form part of the Madras Museum—the index to our presidential resources.

5. My honorable colleagues will read with pleasure, as I did, the remarks at the end of paragraph 20.

6. I understand from Mr. Lawson that the meteorological observations which he contemplated, (see paragraph 21) were not considerable and were for purely horticultural purposes. There is, in fact, no difference between his views and those of Mr. Dyer on that matter.

M. E. GRANT DUFF.

Memorandum on the Constitution of the Botanical Department for the Madras Presidency.

His Excellency the Governor has done me the honor of requesting me to put on paper my suggestions with regard to the organization of a Botanical Department for the Madras Presidency.

2. I need not say that such suggestions can have no official character. They only represent opinions formed on the basis of considerable practical experience from the Home point of view of the botanical needs of our external tropical possessions and of the actual working of the different types of botanical establishments by which those needs may best be met.

3. India possesses one botanical institution, which, though technically provincial, must at any rate in external estimation, from its age (it has nearly attained its centenary), from its scientific traditions, and from the splendour of its maintenance, rank as imperial.

4. Whatever be now or in the future the exact official status of the Royal Botanic Garden, Calcutta, it must always be regarded as standing at the head of the botanical institutions of our Indian Empire. Placed in contiguity to the seat of Imperial Government, it necessarily ranks as the Kew of England in the East.

5. While undertaking as an administrative duty the work of a Botanical Department for Bengal and its associated and dependent Governments, it is so equipped with the resources of scientific staff, herbarium and library, as to bring into focus all that relates to the scientific investigation of the Flora of our Indian Empire as a whole and of its relation to that of adjoining countries.

6. We ought then eventually to be able to look to our botanical officers in Calcutta for the solution of all problems rising out of the practical or scientific study of Indian botany. A close co-operation, as in the past, will, no doubt, always be maintained with Kew. The two establishments will continue to work in scientific harmony. It will therefore, as the knowledge of Indian indigenous vegetation becomes better settled, only be necessary to refer to Kew such problems as, for various reasons, cannot be thoroughly settled without a reference to Europe. Calcutta will then be to British India what Buitenzorg is to the Dutch Indies.

7. It is necessary to premise thus much in order to see clearly what should be the scientific scope of the more strictly localized botanical institutions which India from its vast size undoubtedly requires.

8. Of such botanical institutions of the second order, India at present only possesses one which can be said to be fully organized. Saharunpore is a botanical centre, the scientific prestige of which is only subordinate to that of Calcutta. Its botanical work has always been traditionally regarded as localized to

North-Western India and with such resources as are available unofficially to adjacent countries.

9. In other parts of India any definite organization may be said to be wanting. Not that its want has not been felt, but it has been provided for at the best imperfectly and in a tentative and un-coordinated manner. What has been done seems to have produced only moderately useful results with undoubtedly much expenditure.

10. I have put the scientific aspect of a Government Botanical Establishment to the front, because it is the solid and rational foundation of all the rest of its work. The general consensus of all civilized practice has almost always, however associated with scientific botanical work, other duties of a more practical and administrative kind. Besides a herbarium or *Hortus Siccus*, by reference to which the names of plants can be determined, it has been the custom that a botanic garden or collection of living plants should be an integral part of such an establishment. From this it flows naturally that a botanic garden will, in a country like India, be the centre at which new experimental cultures will be started and new cultural industries called into existence. Thus India owes in great part to the Calcutta Botanic Garden its great cinchona enterprise and to Saharunpore the practical inception of tea cultivation, though the initiatory stages must be credited to the Calcutta botanists.

11. I may now attempt to define, or at any rate illustrate, more precisely the actual functions of a botanical establishment:—

I. It will occupy itself with obtaining an accurate and scientific knowledge of the flora of its sphere of operations. This knowledge will be laid up, so to speak, in its official herbarium. Hence it will be the routine duty of the staff to identify and supply the name of any tree or plant which for any reason excites the interest or curiosity of any Government officer in the course of his duty.

II. It may be asked why should any one want to know the scientific name of a plant. Simply because vernacular names are numerous, loose in their application, and not current beyond their own localities. A scientific name has universal currency and is therefore the key of knowledge to information relating to the plant that bears it in any civilized language. It is true that a few vernacular names, such as Sal and Teak, become so completely and exactly limited in their connotation as to be as good as scientific names and to take their place. But the number of such cases is very few. Take Ebony for example; this means at least half-a-dozen quite distinct trees in general and no one in particular. If a name, such as Iron-wood, of even wider

application is tried, it is found to be perfectly impossible to fix it in any way whatever. But botanical names have a further advantage, and that is always a distinctive description by which at once the proper application of the name can be tested. Thus when the disquieting statement was made that the Red Bark (*Cinchona succirubra*) grown on the Nilgiris was really the less valuable Grey Bark (*Cinchona micrantha*), His Excellency the Governor himself was readily able to dissipate the scare by the simple process of comparing the trees in the plantations with a technical description.

III. Besides the herbarium, there should be in the botanic garden of the establishment a good named collection of the most interesting trees and plants of the country and such others of exotic origin as are adapted to its climate and desirable to introduce. Actual visual experience is after all the easiest way of learning, and the presence of an interesting tree or plant in a botanic garden is the most direct way of introducing it to the notice of the inhabitants.

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14. *Director.*—Mr. Lawson, late Professor of Botany in the University of Oxford, accepted the appointment of Superintendent of Cinchona Plantations (G.O., October 14th, 1882, No. 1116). He was further directed (G.O., April 14th, 1883, No. 443) to take charge of the Government Botanical Parks and Gardens, and subsequently (G.O., August 15th, 1883, No. 987) was designated Director of Government Cinchona Plantations, Parks and Gardens, Nilgiris. He made (August 19th) a preliminary report and (September 15th, 1884) issued as Director the annual report. As regards a head for the department, a very slight extension of Mr. Lawson's duties is all that is required.

15. *Botanic Garden.*—The situation is not complicated by the existence of any Government Botanical Garden at Madras. The existing Government Garden at Ootacamund seems in every way the proper seat of the Botanical Department of the presidency. If its remoteness from the official capital is deemed objectionable, it may be pointed out that in the cases of Jamaica and Ceylon similar remoteness is no bar to great activity and has many compensating advantages. The planting industries of Southern India gravitate to its western side, and the botanical headquarters should be in the nearest feasible proximity to them. During the short time Mr. Lawson has been in charge he has succeeded in picking up the existing threads in the establishment of botanico-economic work and has reported upon them with precision and ability. We may confidently, I think, look to him for future reports, which will be inferior to those of no botanical establishment of the Empire for interest and usefulness. The detailed administration of the Botanic Garden will always require a Curator subordinate to the Director. Mr. Lawson has the advantage of the cordial co-operation of Mr. Jamieson, who has long efficiently filled this position.

16. *Dependent Establishments.*—In order to extract the maximum of usefulness from a tropical Botanical Department, it is found necessary that it should comprise a chain of gardens at different elevations as in Ceylon and Jamaica. Ootacamund will, therefore, require to be supplemented by—

I. *An Intermediate Garden.*—Mr. Lawson apparently has this in view in his proposal with regard to Gúdálúr, where "Government would be able to grow successfully many plants, especially palms, which they cannot grow now in any of their other gardens."

II. *A Tropical Garden.*—This already exists at Barliyé. This must be an exceptionally favored spot for cultural purposes. The Mangosteen fruits here alone in British India. *Amherstia nobilis* has flowered. *Cacao* ripens its fruits (Report 1881-82). *Ipecacuanha*, under Mr. Lawson's directions, progresses. It seeded here for the first time in India (Report 1882-83). *Liberian coffee* was fruiting

It fruit also freely at Barliyé

freely (His Excellency the Governor's Minute, pp. 9-11). *Qualities* is successfully established (Report 1882-83). Mr. Lawson (August 19th, 1883) described the garden as "a deadly excoavation in a deadly ghât," but subsequently (Report 1883-84) he "cannot help thinking that the unwholesomeness of the place has been exaggerated," and considers "this garden for its size to be the most important one which the Government possesses on the slopes of the Nilgiri plateau." I have no doubt that Mr. Lawson's more matured opinion is the correct one. Unhealthiness judged by the European standard is part of the price which has always to be paid for the cultural advantages of a tropical garden. And in our experience the tropical dependence of a Botanical Department is always complained of in this way.

III. A variety of other Parks and Gardens would, as at present, continue to be under the Director's charge. A similar arrangement works well in Jamaica and elsewhere. But it should be regarded merely as one of administrative convenience, and the botanical work proper should as far as possible be concentrated in its own seat.

17. *Herbarium*.—A thoroughly worked up and named collection of the plants of the Peninsula must, from what I have already said, be an indispensable feature in the organization of the department. It should not merely be the standard of reference for the department, but the official Government herbarium of the presidency. I think I may assume without argument what every civilized Government now admits that the study of the natural features and productions of the country it administers is one of its obvious duties. It must, I think, be also allowed that Madras has very imperfectly so far recognized this. The bulk of our knowledge, still confessedly most imperfect, of the botany of the southern portion of the Peninsula is due to the unofficial labors of two distinguished Botanists—Doctor Wight and Colonel Beddome. The existing Government herbarium is preserved in the Government Central Museum, Madras. It comprises the important collections of Colonel Beddome, which, I believe, were purchased by the Government. Mr. Lawson has inspected the herbarium and reports, "the specimens are in excellent order. The sheets on which they are fastened are free from dust, and there is no trace of the plants ever having been attacked by insects." It is clear, therefore, that it has been admirably conserved. But I understand that the plants are kept tied up in bundles in drawers and the genera arranged alphabetically, while the plants of separate collections have been kept distinct. These facts, if true, tell their own story; they prove that the herbarium

* This is no longer the case. They have been carefully arranged according to the *Flora Indica* as far as that work has gone.—M.G.D.

cannot have been much used at Madras for scientific purposes. Now a herbarium is after all an instrument which it is little use keeping, however carefully in its case. To be efficient, it requires the living presence of a skilled botanist who is constantly using it, noting its defects, and sparing no pains to make it perfect. I am far from wishing or intending in the remotest degree to reflect on Dr. Bidie. It is only necessary to refer to his reports to wonder how he can possibly manage to carry on single-handed so successfully all the lines of work comprised in the museum under his charge. Mr. Lawson with characteristic activity has set to work to create a herbarium at Ootacamund. In his tour, accompanying His Excellency through the Anaimalais, he made large collections (Minute, October 3, 1884); as detailed in his (1883-84) report, he has had liberal assistance from other quarters. He has got together some 4,000 * species, "the most part of which are correctly named." Some help in this respect has been rendered from Kew.

The herbarium under Dr. Bidie's charge has been reinforced on the other hand with upwards of 4,000 sheets from Dr. Wight's invaluable herbarium, which has been presented to the Royal Gardens as a private gift. Other contributions have also been made. Now I cannot see the use of the Government running, as is now practically the case, two independent State herbaria. What it possesses in this direction should, in my opinion, be concentrated where it is most wanted and will be most used, namely—in connection with the proposed Botanical Department at Ootacamund. I would recommend, therefore, that the necessary steps be taken to transfer to Mr. Lawson's charge the Government herbarium from the Central Museum, Madras, and this, with the collections he has made and will continue to make, should be housed in a proper building.† In return Mr. Lawson should be instructed to have prepared a mounted set of authentically named and typical representatives of the Peninsula flora, which might, as heretofore, serve as a standard of reference for residents in Madras who wish to identify their plants.

This being arranged, it should be the business of the Botanical Department, with the necessary Government authorization put formally on record and with the recognized assistance of the Forest Department, to push on the scientific investigation of the Flora of Southern India. The department should be in constant correspondence with the Central Imperial Indian Herbarium at Calcutta. It should charge itself, in fact, with the adequate performance of its share of the systematic botanical survey of India. To further this end the Madras Government should be prepared to make a small annual grant for the maintenance of collectors in districts of which the vegetation is still imperfectly known, more especially

* Many more—and as a pure labor of love.—M.G.D.

† The climate of Ootacamund is better for the conservation of plants than that of Madras—perhaps even than that of England. The old laboratory can be adapted for a very small sum.—M.G.D.

in the contiguous Native States. The flora of the apices of all peninsulas is always peculiar and interesting. Some of the most important problems in the geographical botany of India still await their final solution pending the investigation of the outlying parts of Southern India. The department would take care to furnish Calcutta and Kew with sets of their new collections. Both would reciprocate by donations from their duplicates, and Kew would furnish the elucidation of the freshest modern botanical scholarship. The Botanical Department would on this ground alone speedily attain a scientific position and reputation, and the Madras Government, by giving its countenance to the work, would remove from itself the reproach under which it undoubtedly at present labors of having done nothing officially for the botanical investigation of the countries under its rule, or of having materially contributed anything to aid in the preparation of the Flora of British India now in preparation at Kew under the authority of the Secretary of State.

18. *Museum*.—Mr. Lawson has got together "a small collection of woods, fruits, seeds, and other vegetable products of economic interest to those living on the Nilgiri plateau." Such a collection is an indispensable adjunct to the department. It should not, however, be a showy or expensively installed collection for public display. The proper seat for this would be the Central Museum under Dr. Bide's charge at Madras. But it should be a working series illustrative of the business and communications on economic subjects passing through the Director's office. Recent correspondence, for example, with regard to Pinoy Tallow has shown that even in the presidency itself the history of its botanico-economics is very imperfectly known. As each subject is from time to time worked up, the specimens illustrating it, carefully and properly authenticated, should be preserved for future information and reference. The same museum like the herbarium might, with a proper official understanding, subserve the purposes of the Forest Department, and that department might with great propriety make some small annual contribution in respect of the maintenance of both.

19. *Library*.—It is obviously unwise economy to refuse a competent man the needful appliances for his work. A small, but carefully selected, library should gradually be brought together, which should comprise all the leading books on Indian botany, especially such as are cited in the "Flora of British India." These should be added all works useful for reference bearing on the actual or possible cultural industries of Southern India. The library, being an office library, should be in the same building as the Director's office and at no great distance from the herbarium and museum.

20. *Correspondence and Archives*.—The great thing in administrative existence is to deal with a subject when it arises effectively and once for all. What strikes me, as I believe it

has struck others, in connection with Indian work is the perpetual and recurrent oblivion of the past. Correspondents constantly write to Kew from Southern India as if the country had only recently been rescued from the deepest obscurity, and this is true, not merely of private individuals on their own behalf, but of representatives of large enterprises whom it might have been supposed would have mastered the A B C of their business before plunging into its actual inception. It seems absurd that practical men should constantly prefer to write Home rather than to utilize sources of information available on the spot. What then is imperatively needed is, in connection with the botanical establishment, a sort of intelligence department in which all available information on any subject likely to interest the planting or industrial communities should be systematically posted up and filed. This is done at Kew in simple self-defence. When the routine correspondence is examined each morning, it is impossible to predict from what quarter of the world or upon what subject an inquiry may present itself. It is necessary then to have the materials for such inquiries cut and dried in advance. And the same system, to meet in degree the same need, is required at every botanical centre. As soon as it is known throughout the presidency that there is an officer with the necessary means of information prepared to deal with reasonable inquiries, there is no probability that his services will not be put in requisition. The annual reports of the department should briefly touch on any subjects which have been brought under its notice and occupied its attention during the year. Records should also be given of the progress of interesting plants entrusted to planters and others in different parts of the Presidency for experimental purposes. In the Botanical Department in Jamaica and to a less extent elsewhere it is found convenient to prepare and issue from time to time for general information a carefully prepared *précis* on any subject on which for the moment more than ordinary interest is manifested. Of course when the more trivial matters are filtered out and dealt with, the more difficult may, either officially or semi-officially, always be referred to Kew for the best available Home scientific examination and report.

The routine Government papers relating to botanical matters, which are from time to time issued by the Madras Government, and of which it has for some time been so obliging as to furnish Kew with copies, will afford an admirable nucleus for the Director's archives. It is a matter of constant surprise to me how admirably served the Government is even with the present system. But the information does not appear to me to permeate, and it is to facilitate this that the arrangement I now propose is directed.

21. I have now dealt with all that appears to me material relating to the organization of the department. I observe, however, that in his letter of August 19th, 1883, and report for 1883-84, the Director recommends that an extended series of meteorological observations

should be undertaken by his department. This, from what I have observed elsewhere, I venture to think unadvisable. Such observations should, of course, be taken on the Nilgiri plateau. But meteorology has now passed out of the amateurish stage. If undertaken by the Government, as is certainly proper, it should be with the best methods and in harmony with the work of other meteorological stations throughout the Empire. It is not within my province to say what department of the executive should be charged with this duty. But I am quite clear that it is unadvisable for the Botanical Department to burden itself with what is in no way within its proper scope.

Arrangements might, however, very properly be made for posting the daily meteorological data at the entrance of the Botanical Garden.

22. The suggestions I have made will involve some immediate expenditure. The Madras Government has, however, I believe, earned large sums by the cultivation of cinchona. Supposing that the proposals I have made commend themselves to His Excellency's Government, then I think there is a strong case for a fair, but in no way extravagant, outlay to put the new department on a proper working footing. And I here feel bound to point out, though entirely on my own initiative, that the salary and position of the Director will require consideration. Mr. Lawson was presented to the India Office for his present appointment in reply to an official communication of May 6th, 1882, in which "the services of a person of good scientific attainments and botanical experience together with some administrative capacity" were asked for "to take charge of the Government Cinchona Plantations on the Nilgiris." For this a salary of Rs. 600 a month was offered. Now Mr. Lawson's official duties were very speedily extended, and in all probability they will be still more so. I am quite sure that the Madras Government, on general grounds, will not be satisfied that a salary which it deemed proper for one set of duties should still be held sufficient when these are very considerably added to.

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24. *Agri-Horticultural Society, Madras.*—This is the only Botanical Garden in the plains of Southern India and, though subsidized by the Government, is not under its control. Founded in 1835, its establishment and early management owed everything to its first Secretary, Dr. Wight. The Government granted it 7 acres of land, to which an extension was sanctioned in 1855. From a sketch of the history of the Society drawn up by Dr. Bidie in 1869, it is abundantly evident that its operations have been of the greatest usefulness to the Madras Presidency. To its experiments in 1840 may be attributed the introduction of coffee cultivation. This is merely to cite one instance; but, if it had done nothing more than encourage the cultivation of European vegetables and of indigenous and naturalized fruits of superior quality, it would have earned the lasting gratitude of the community. It is

much to be regretted that in more recent years the more scientific aspects of the garden seem to have been sacrificed with little consideration. That, however, is a matter upon which, as a private institution, the Society is entitled to judge for itself. At Kew we can only measure its activity by its proceedings, which, certainly, for quick appreciation of the wants of the moment and careful editing, are not surpassed by anything of the kind published in India. The operations of the Society would not, I think, be interfered with by that of the Botanical Department which I have proposed. On the contrary I think that relations of the most friendly kind should always be cultivated between them. Furthermore, in consideration of the support which Government extends to the Society, I think it might be fairly asked to act as agent to the department and undertake to receive and transmit its consignments of plants from and to other countries.

25. For the sake of directness of expression I have written this memorandum in the first person. Sir Joseph Hooker, however, authorizes me to say that, having given his best attention to the matter, all that I have written has his entire concurrence.

W. T. THISELTON DYER.

Kew, 10th Feb. 1885.

H. E. the Governor's Minute
on Mr. Threlton Dyer's memorandum
re. Constitution of a Botanical
Department in Madras.

The Hon Mr. Sullivan
The Hon Mr. Martin

411
19/3

Botanical Dept: for
Madras.

I have perused Mr. Threlton Dyer's Memo and H. E. Minute thereon with much interest and am of opinion that steps should at once be taken for giving effect to the suggestions which have been put forward. We have the gardens, the herbarium and the Director and apparently all that has to be done is to pass an order constituting the Department. Formally appointing Mr. Lawson as the Director, and directing the transfer of the herbarium to Botanicum and Mr. Lawson's salary should be raised by Rs. 300 or Rs. 400 for which I suppose the Secretary of State's sanction will be necessary. The Department having been constituted Mr. L.

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17-85

will be pulled on
to inform it proposals
for systematically working
it - The work of the Dept
could then in 1885-86 be
met from savings and
hereafter separately
budgeted for

H.S.

21/3

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Rt Hon. Mr. G. W. M.

9/10/41.

11th Apr. '85

H.E. Van G. in C. ~~and~~ cordially
approves, and is much in-
debted for the suggestions for
the constitution of a Socy.

Botanical Department
in Her Providence
which have been put forward

by Mr. Shiohatsu byer with
the concurrence of his Judge

Hooker. The measure will,

besides subscribing. The int.

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and immediate practical

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Amotones, can be carried

into effect at a very small

cost, ^{to} which it is hoped

the sanction of L. Lawrence

670 Principal Records

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of India and of the
Majesty's Secy of State with
the Ministry avoided.

2. Mr. Lawson will of course
be the head of the new
department and his pay
should in the opinion of
raised from Rs 800 to
Rs 1000 per mensem
rising to Rs 1000 in five
years. He is living at
present under no definite
conditions, and the Govt
consider that his services
from the commencement
should be declared to count
for leave and pension and
that he should be admitted
to the benefit of the more
favourable leave rules. A

Application will be made
in the Financial Department
for sanction to these proposals.

3. Under the new arrangement
Mr. Lawson will retain charge
of the cinchona plantations
and the superintendence of
the Botanical Gardens &
parks, on the Nilgiris as at
present. His official design-
ation will be Government
Botanist and Director of
Cinchona Plantations.

4. On receipt of sanction
orders will issue for the transfer
of the Madras Herbarium to
Botanica and for fitting up
the old laboratory building
with reception, and on the

Memorandum to the Secy of State
in the Secy of State's office
on the subject of the
transfer of the Madras
Herbarium to the
Botanical Department
and for fitting up
the old laboratory building
with reception, and on the

The minor points of organiza-
 tion noted in Mr.
 Thorton Byers memorandum.

W.S.

R. L. ...
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P. ...
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 19/10/85

Orders passed on proposals regarding the constitution of a — in the Madras Presidency.

Encl.