M.R.O. 14-5,450-22-10-25.

MADRAS RECORD OFFICE.

Government of Madras.

Revenue **DEPARTMENT.**

G.O. No. 3/04 Press ~~Mis.~~

339.340

Dated 15-11- 1866.

Not to be folded or roughly handled

No. 339. Read the following Circular from the Government of India, Public Works Department, (Revenue—Forests,) dated Simla, 26th September 1866, No. 13:—

Formation of Reserves for the supply of Fire-wood.

Read the following—

Proceedings of the Government of Madras, in the Revenue Department, relating to the planting of wood in the Nellore District.

From the Collector of Nellore, to the Secretary to Government of Madras, Revenue Department, dated 28th April 1864, No. 22.

1. Some days ago I saw in the public papers a correspondence with the Collector of Coimbatore on the subject of fire-wood. I have the honor to submit, for the Orders of Government, whether we can ever place this question on a satisfactory footing, till we take into consideration the cost of production.

2. I would suggest that the cost of production should be calculated, 50 per cent. added to meet probable rise in price of labour and value of land, and the price of wood fixed accordingly.

3. That this measure would create great immediate distress I do not deny; I think it is better than the state of no wood we are fast reaching to. And I do not believe that any *bonus* system in respect to assessment will be of the slightest avail,* so long as the price of the wood now available is fixed without reference to the cost of its re-production. Those who may be willing to engage in growing wood must consider what is likely to be the cost of its production, its value when grown; how can they come to any satisfactory conclusion on these all-important points, when the price of the wood sold at present is fixed arbitrarily, and there is every reason to believe, rather with reference to the means of the poorer classes, than what must be demanded to avoid loss, were the wood sold by those who grew it.

* As regards the Presidency generally.

No. 779, dated 6th May 1864.

Order thereon by the Government of Madras, Revenue Department.

The Government request that Mr. Dykes will endeavour to procure information of the nature proposed by him as regards the Nellore District, and submit it in due course through the Board of Revenue.

From the Collector of Nellore, to the Secretary to Board of Revenue, Madras, dated 25th June 1864, No. 192.

1. I have the honor to submit the information called for by the Government, in their Proceedings in the Revenue Department, No. 779, on the suggestion I ventured to make under date the 28th April last, that the question of fire-wood can only be put on a satisfactory footing by ascertaining the cost of production, and fixing the price accordingly.

2. Hitherto, as the Board are aware, we have been selling natural wood, and our population increasing, the natural wood has receded, and it becomes necessary to re-place it either by private enterprize, or under the immediate action of Government.

3. In their order, the Government refer only to the District of Nellore; and the information I now do myself the honor to submit, has, therefore, reference only to this District, where our rule has been established some sixty years, and the natural wood during the period has receded from twenty to thirty miles round the chief town.

4. For many years, whether in Nellore or elsewhere, during the second quarter of this century, trade was stagnant. Men got a *bonus* to destroy wood (the Cowle system). It is only of late years that the change has set in; and the rate at which the natural wood is now receding

has only to be localized and marked, to show very distinctly the necessity for immediate action, either on the part of Government or private individuals; and myself believing it is hopeless under any circumstances to look for help from the latter quarter, the following calculations have been made solely with reference to Government.

5. The cost of planting, the time wood takes to grow, the cost of guarding during that period, and the assessment that would be obtained were the land otherwise occupied, are the four main items of cost in producing fire-wood; and the first item being wholly unknown as might be expected for the subsequent calculations, the information I have received gives very satisfactory data; and I may briefly state that ten years is the average time wood takes to grow, Rupees 2½ is the average cost of guarding, and Rupees 3 to 10 is the cost per acre under the head of assessment.

6. One man could guard from 150 to 300 acres; and, taking the cost of a watchman and supervision in round numbers at Rupees 50 the year for 200 acres, is to make a charge that might be reduced from Rupees 500 for 200 acres to Rupees 500 for 300 acres, or from Rupees 2-8-0 to Rupees 1-11-0 per acre. But it is not always possible to get such large blocks of unoccupied land in a ring fence; and I have, therefore, taken 200 acres as the average, and similarly take 8 Annas as the average assessment per annum per acre.

7. Taking, therefore, no account of the cost of planting, ignoring equally the time the money must lie idle, and the usual profits on capital expended, or the addition that should be made to meet probable cost of planting hereafter with reference to probable rise in prices should Government prefer to adopt that course, under the two heads, simply of guarding and assessment, the calculations given in the preceding paragraphs show that, to raise an acre of wood, we must expend Rupees 5 assessment on the land, Rupees 2-8-0 cost of guarding, and, at the present rate of selling, must cut at the end of ten years twenty-four cart-loads the acre, to secure ourselves from loss.

8. On the other hand, the calculations I have received as to yield, give ten cart-loads as the average yield per acre; and, to meet the cost of guarding and assessment the selling price of wood should, therefore, be raised 7 Annas or 140 per cent.

9. Copse re-produces itself in six or seven years. We should also, after the first year or two, be able with safety to let out the cutting of the grass; and in these ways the Board will observe, we could to some extent reduce prime cost as stated in the preceding paragraph. But any reduction so made would not do more than meet the cost of planting, and other items referred to and similarly omitted in these subsequent calculations; and 12 Annas may be considered as the lowest price at which wood could, with propriety, be sold the cart-load, to cover the average cost of production.

10. Bought from Government at present at 5 Annas the cart-load, the wood is sold in the town of Nellore at Rupees 2-8-0 the cart-load, Rupees 5 the same quantity in retail; and this state of the wood market in Nellore, as regards fuel, may, I believe, be taken with propriety to illustrate the general bearings of the question; and for the sake of convenience, in the following remarks, I will refer to the town of Nellore alone. There is everywhere the increasing population, the receding wood, and much the same requirements. What I prove to be applicable to Nellore will be more or less applicable to the District generally, and being thus localized can be more easily discussed.

11. And first, I would call attention to the proportion borne by the charge on account of Government to the cost of the article to the consumer, which could scarce be realized by any one, till thus brought face to face. To the wholesale consumer, the Government charge is half Anna in the Rupee. To the labouring man, who buys his four faggots for himself and family, it is half a Pie; and thus tested, it is obvious that it is not Government interference, or a rise even of 140 per cent in the Government prices, that could materially affect the cost of the article to the consumer, either rich or poor; and it is somewhere else we must look to find the causes of the present distress, and of the insufficient fuel that affects the health of our large town as much if not more than bad drainage.

Proceedings of the Madras Government, Revenue Department, 15th November 1866.

12. The Government price of 5 Annas, or rather charge for permission to cut, has really very little to do with the selling price of the wood in the bazaar; and raising the price of wood, as sold by Government, from 5 to 12 Annas, would only make the wholesale consumer pay Rs. 2-15-0 for his cart-load, instead of Rupees 2-8-0 and the labouring man a Pie and a quarter instead of half a Pie as his contribution towards the Government Forests, a rise in prices that cannot be considered excessive for the object in view, or calculated to produce the distress, I erroneously apprehended when I addressed Government in April last.

13. And believing it is the distance the wood has to be carried that mainly raises its price at present, I am glad to say that the means are in the hands of Government of raising the Government price as proposed to meet the cost of production, without, in any way, raising the selling price to the consumer, either wholesale or retail; and the course I do myself the honor to recommend may be given in a few words.

14. I beg to recommend that I be permitted to take up a sufficient quantity of land within a radius of ten miles round all our large towns to furnish the required supply of wood, and if this authority be granted to me, the selling price of wood may, in my opinion, be raised 140 per cent., and yet the same article put down in the market at a lower rate than at present. The difference will be saved in the distance.

15. In addition to calling for the information already referred to, on the receipt of the Government Proceedings under acknowledgment, I called further for a rough estimate of the average requirements per 1,000 of the population of all classes. It is a difficult question. There is so much to disturb the results; the data are so varied; some of our population scarce use fire-wood at all; others go far beyond the necessaries of life. Again, if there is cooking for the living, there is the fire also for the dead. It is about a cart-load a day in Nellore. There is also the large and noxious expenditure for distilling Arrack; there is burning bricks, burning tiles, chunam, &c., fuel for travellers in addition to the stationary population; and, to take all these points into consideration, and come to an accurate conclusion, would require a statistical knowledge not available. I have, however, simply calculated what would be enough for the labouring classes, supposing them all to use only wood; and, taking this calculation as the basis, I believe I shall to a certain extent provide for the various other wants referred to; and, if the calculation is below the mark, it will be comparatively easy to increase, whilst I am very certain it will not be necessary to reduce it; I shall not have taken up too much land.

16. The Talook authorities give two cart-loads a head a year. The Deputy Collector, in charge of the Salt Department, raises it to 4½. The Sub-Collector, Mr. Morris, also calculates the consumption at two cart-loads a head a year; and thus supported, I should be justified in taking 2,000 cart-loads as the requirements per thousand per annum for fire-wood, or 200 acres. But these calculations are, I think, based on data gathered where fire-wood is abundant. When proper care is taken of the wood before being cut, it is also probable the yield will be larger than ten cart-loads the acre; and, taking these points into consideration, I do not propose to ask now for more than 750 cart-loads the 1,000 of our population, on 75 acres at ten cart-loads the acre, as the area to be set apart for providing fire-wood, should these proposals and calculations be considered worthy of being tried.

17. I have taken the cart-load to be 1,200 lbs., the faggot 2½ lbs. I have checked the wholesale consumption by the estimated daily supply coming into Nellore on carts, bullocks, men, women, and children. The faggot I have weighed; and the results, wholesale and retail, thus obtained, have been again checked by jail statistics; all of which tend to show that four faggots, or 10 lbs. of fire-wood is not more than enough for an average family of four a day, 2,500 lbs. or two cart-loads are required for a 1,000 of the population, and for the same number 750 cart-loads should at least be provided for the year; to produce which, as already stated, 75 acres are requisite.

18. At the same time there is no doubt that every year it will become more difficult to find land conveniently situated for wooding, should the present provision be found insufficient. It is equally desirable, for the sake of the public health, that there should be no stint in this important item of daily consumption. Insufficiently cooked food tells heavily on health. It is also very important

to free, as much as possible, for the enrichment of the land, the cow-dung that at present is used as fuel; and taking these points into consideration, should the Board think fit, 100 acres might, with propriety, be set apart instead of 7.5 acres per 1.000, or a cart-load a head; and 700 acres would thus be the area required to provide a steady supply for a population of 1,000, taking seven years to be the period required for re-production.

19. Twenty years ago, a man, when he wanted fire-wood, sent his cart outside the town, gave 4 Annas to the coolies to cut the wood, and got his cart-load.

20. There are now lying unoccupied, within a radius of ten miles of Nellore, including this land, and excluding the Delta villages, 40,600 acres in round numbers, some of which still carry copse that only requires proper care to give a fair return in four or five years. We have a population of 2[illegible],000. We should, therefore, for Nellore, require 17,500 acres for a steady supply; and if the Board will allow me to take up this land for the purpose of providing the town of Nellore with a proper and steady supply of wood, in the course of five or six years, the year's supply, though it could not be put down so cheap as it was twenty years ago, could still be put down from the same land, or its neighbourhood, less the cost of a carriage at present of from 20 to 30 miles; and this will more than cover, as I have stated, the extent to which it is proposed to raise the price at which Government sells it.

Wood.	Acres.	
Exclusive of Delta villages	4,432	
Nellore township	3,126	
		7,558
Waste.		
Exclusive of Delta villages	28,876	
Nellore township	3,537	
		32,413
		39,971

21. Shaganam and Dagadarti are the limits now of our wood market, instead of the country as formerly, in the immediate neighbourhood of the town. These distances it is that fix the present market price of fire-wood, for the cutting of which, however 8 and 9 Annas must be given, instead of 4 Annas as formerly; and, taking the Government demand at 5 Annas, and the cost of cutting at 8 Annas, we have in round numbers Rupees 1¼ at Rupees 2½ the cart-load to meet the cost of carriage (twenty miles), and the profits of the undertaking; whilst, at the ordinary authorized rates, this is simply what must be paid for the cart-hire at 14 Annas the ten miles.

22. It is probable that the carts are a good deal *shaken* on their way into Nellore; that the sticks picked up go to swell the retail trade and profits on the wholesale venture; that the 5 Annas is certainly not paid to Government in every instance, &c., and in these ways Rupees 1-12-0 do not perhaps actually represent the precise margin left to the speculator after meeting unavoidable outlay. But these are minor features; and it will, I think, be admitted that it is the cost of carriage that mainly raises the price of wood to the consumer; and that the distance from which it has to be brought being reduced by half, we shall be able to raise the Government price by 7 Annas, and yet give no cause for increasing the cost of the article to the consumer. It would be 7 Annas against 12 Annas cart-hire; and, supposing the carter to work cheaper on his own account than the Regulation rates, it would still, from what we know of the cost of felling, be impossible to reduce the cost of carriage to 7 Annas the ten miles, and the proposed size in the Government selling price should be 2 per cent. in the consumer's favour on the cart-load.

23. Should the Board think fit, as I have referred chiefly to the town of Nellore, so in like manner, the soundness of these views might, with propriety, be tested where the want of fire-wood is perhaps most felt, and the several measures could be most effectually supervised; and 2,500 acres is the area we should in that case have to take in hand at once, and could probaly guard at the cost of Rupees 700 per annum. Much of it that once carried valuable wood is now let as pasturage at an Anna or two an acre. I have directed the Tahsildar to see whether the ryots would relinquish the land for an object of such importance to themselves; and securing at once all the land required, but only disturbing the cattle annually to the extent of 2,700 acres required, I

Population of the town 25,000 at 700 acres for every 1,000 souls	Acres.	700
		7,17,500
for seven years or for the year.		25,000

trust no inconvenience would be felt on this head. As the area available for pasture annually diminished, fresh arrangements could be made to the westward; and, instead of opposition, seeing its importance, not only for fuel, but also as regards attracting and retaining moisture, setting free labour now carried off to distant jungles, &c., the proposed planting would, I hope, have the cordial co-operation of the Nellore ryots.

24. The cost of the proposed arrangements could not at present be met from our receipts for the three Talooks of Nellore, Rapuru, and Guduru, which for Nellore town alone should show receipts at the rate of fifty carts, or Rupees 15 a day, Rupees 5,000 a year, do not show altogether under the head of fire-wood Rupees 300, and the whole district shows only results that no extent of Inam villages can possibly explain. But, if the Sriharikota receipts on account of fire-wood may be made available, after paying for a suitable guard there, then no difficulty would be experienced in respect to funds, and the experiment might be carried out on a larger scale.

No. 6,121, dated 16th September 1864.

Order by the Board of Revenue, Madras.

1. Ordered that the foregoing letter from Mr. Dykes be submitted to Government with reference to the Government Order, dated 6th May 1864, No. 779.

2. Mr. Dykes, in his letter to Government, No. 2, dated 28th April 1864, suggested that the present tax on fire-wood, the produce of Government jungles, should be raised to an amount sufficient to cover the cost of *growing* wood to be used as fuel. The reason on which he based this suggestion was that "so long as the price of the wood now available is fixed without reference to the cost of its re-production," private persons willing to engage in growing wood are precluded from doing so, inasmuch as they cannot, while the price (tax) is thus arbitrarily fixed, calculate the cost of growing wood, or its value when grown.

3. In his letter to the Board, he expresses an opinion that, "it is hopeless under any circumstances to look for help" from private persons in supplying the public with wood for fuel. He, therefore, proposes that Government should undertake to grow wood with this object, and enters into certain calculations showing the cost at which Government could grow wood for fuel, the quantity of fuel consumed by the Native population per head, and the extent of land required to supply the supposed demand. Thus he reckons that 100 acres of land would be sufficient to supply a thousand people with fuel for one year; that to keep up a constant supply, 700 acres ought to be allowed for each thousand, taking seven years to be the period required "for re-production;" that the cost of growing wood as proposed would be Rs. 7-8-0 an acre distributed over ten years; and that to reimburse the Government, if they undertook the expense of thus supplying the public with fuel, the Government charge on each bandy-load of fire-wood ought to be 12 Annas (looking at the present wholesale and retail prices,) instead of as now only 5 Annas a bandy-load.

4. Mr. Dykes believes that wood grown for fuel will prove productive at the end of ten years from the time of planting. A single year's felling will, it would seem, suffice to re-pay all the expenses previously incurred, and subsequent felling once in every seven years all intermediate expenses.

5. According to this calculation, the extent of land needed for supplying the town of Nellore, containing a population of 25,000 persons, would be 17,500 acres. Mr. Dykes desires leave to commence the experiment by occupying this extent of land within a radius of ten miles round Nellore to supply that town with fuel, taking up each year 2,500 acres, at a cost of Rs. 700 per annum, till the whole extent (17,500 acres) is planted out.

6. Mr. Dykes' proposed mode of supplying the public with fuel is intended to meet the increasing difficulty with which wood for fuel is now procurable, especially in the large towns.

He points out that the "natural wood has receded;" that it continues to recede while the demand for fuel is increasing; and that the price of wood must continue to rise with the increasing cost of carriage. He believes (1) that a constant and sufficient supply might be kept up, provided Government would undertake to grow wood within a moderate distance of the large towns; (2) that wood thus supplied might be sold in the market at a less price, or, at all events, at a price no higher than is now paid, inasmuch as a great saving would be effected in conveying the wood to market: a saving that would more than counterbalance any increased expense incurred in growing wood as proposed.

7. The Board observe that Mr. Dykes has erroneously viewed the tax now levied on fire-wood as the "price" of the wood. As the tax is arbitrarily fixed, it is impossible (according to his reasoning) for persons wishing to grow wood to calculate what the expense of growing it would be, or what price such wood would command in the market when grown. Mr. Dykes is, however, mistaken in thinking that Government sell the wood. The tax is covered by the price at which the wood is sold in the market, but is not itself the "price," or the sale value of the wood. Nor is the present price of wood sold or fuel liable to any fluctuations on account of the tax: for the tax is a fixed charge on a given quantity of wood, and, therefore, is not a fluctuating element in the cost at which the wood can be brought to market. This cost may be increased, as shown by Mr. Dykes, by the increasing expense of carriage, or by the increasing cost of labour, by one or by both of these causes; but so far as the tax is an item in the necessary cost, if Government do not vary the rates, the tax can have no disturbing effect on prices. It is obvious, therefore, that, to persons wishing to grow wood, the tax, as now levied, can form no impediment to their estimating the cost of growing it, or to their estimating the profit which present market prices would yield. In calculating the former, they need not allow for any tax: for the Government has never proposed to extend the tax now laid on forest or on jungle-wood to wood grown by private persons; nor, in estimating profits by present prices, need they fear that prices will hereafter be reduced by a reduction in the tax at present levied.

8. Mr. Dykes supposes that the tax is regulated "rather with reference to the means of the poorer classes than what must be demanded to avoid loss, were the wood sold by those who grew it." The object with which the tax is imposed is to provide for conservancy charges on account of existing forests and jungles. This is the principal object whether the tax be charged on fire-wood cut for sale, or on the larger wood grown in the forests. If the Government undertake to plant trees, it is with the view of keeping up the existing supply of wood, whether fire-wood or forest timber. The Board's rules for the conservancy of village jungles are also intended to supply a small fund for planting, but such operations are necessarily limited, and the Board have never contemplated planting or growing wood to an extent that would interfere with private enterprise in the same direction.

9. The returns from the tax, as now charged, ought to cover all expenses connected with the object explained above; but to impose a higher tax with the view of deriving from the forests an additional source of revenue, or even to secure for Government the difference which wood, as at present supplied, is selling for, and the price which wood may eventually bring when the forests may fail to meet existing demands, would be to enhance the price of wood to the country before, in the natural order of things, so high a price need be paid. The public could derive no benefit by such a scheme, nor, indeed, has Mr. Dykes proved that any real necessity exists for raising the present tax on forest grown wood, in order to meet the cost at which wood might be grown on his plan. If the Board understand that plan, the wood, when grown and brought to market, is to be sold at a price which would itself be sufficient to reimburse Government all preliminary expenses, and this in the case supposed would be the more natural course.

10. The Board are also of opinion that Mr. Dykes would find it practically impossible to reduce the market price of fire-wood in the manner he proposes. It is true that the price

Proceedings of the Madras Government, Revenue Department, 15th November 1866.

might be reduced in proportion to the reduced price at which the wood could be conveyed to market, as, for instance, in the case of Nellore, provided Mr. Dykes could furnish the whole required supply from land lying within the proposed radius of ten miles; but if a part only could be so supplied, the price in the Nellore market would be regulated by the cost at which the wood brought from the greater distance could be supplied, and the difference between that price and the actual cost at which wood could be grown on more favorably situated land would belong to the owner of such land, or the owner might obtain a rent for his land equivalent to that difference. At present, private persons may calculate the profits which current prices would give them, as enhanced by any saving they could effect in the cost of conveying the wood to market, and any natural advantage which persons growing wood on the more favorably situated land would thus enjoy, is so much additional inducement to private persons to engage in growing wood.

11. Mr. Dykes has not explained his reasons for assuming that private persons will not "under any circumstances" undertake to supply the public with fuel, though, of course, his plan can have no claim to consideration if this preliminary point be not established. The Board do not think that such a view of the case is correct. They believe that as prices rise, the people will be as ready to engage in supplying wood as they supply other commodities for which the markets afford an effective demand. Mr. Dykes should endeavour to give effect to the views expressed on this subject in paragraph 6 of the G. O., dated 4th June 1859, No. 744. As remarked by Government, private persons may be backward in taking up land in order to grow wood for a profit; but in due time this must be done in India, as in other countries; and, in order to promote so desirable an object, every Collector should endeavour to keep prominently before the people of his District, the liberal terms on which private persons are permitted to occupy land, when it is taken up for the special purpose of supplying the country with either timber or fire-wood. The time has passed when it could be said that private persons will not "under any circumstances" engage in such undertakings, for already more than one large tract of land has been occupied in the neighbourhood of Madras, by persons intending to grow wood on it, for fuel as a profitable mode of employing their capital.

From the Collector of Nellore, to the Secretary to Board of Revenue, Madras, dated 23rd September 1864, No. 313.

1. I have the honor to acknowledge the receipt of the Board's Proceedings of the 26th instant, submitting, for the consideration of Government, my letter of the 25th June, on the subject of fire-wood.

2. In the 11th paragraph the Board refer to my having failed to give my reasons for assuming that private persons will not, under any circumstances, undertake to supply the public with fuel, though my plan can have no claim to consideration if this preliminary point be not established; and then giving it as their opinion that this view of the case is not correct, the Board refer in conclusion to the fact that more than one large tract has been occupied in the neighbourhood of Madras to grow fuel, as proof that the time is passed for such assertions as I had hazarded.

3. The length to which my letter of the 25th June extended, rendered me averse to entering upon any subject that I thought could be avoided; and I, therefore, refrained from going into the reasons which led me to assume that private enterprize could not be depended upon for such remote returns. I thought that it would be admitted with reference to every day's experience. But, as the Board observe, it is an important element in the plan submitted for consideration, and I, therefore, beg that the Board will be pleased to submit, for the further

consideration of Government, that the grounds I went on had not only reference to this country, but to all other countries that I know of, where the people depend for fuel on the vegetable growth of this formation.

4. Men of large property in Europe plant timber, and, where the vegetable growths of earlier formations are to be found on their land, are to be depended on for fuel also. But I know no country where fuel is *grown* by private enterprize. The Board refer "to other countries" where wood is so grown, but not naming these countries, it is impossible to institute a comparison; and nowhere do I believe would it be considered safe to depend on private enterprize for so vital an element of a people's prosperity.

5. In France, the wood-yards of Paris are supplied from the Government Forests. In Germany, the forests and the foresters are essentially Government; and whilst fully aware of the serious nature of the step I contemplate of its effect on private enterprize, and the abuses such a system is open to, I nevertheless thought it safe, with France and Germany before my eyes, to assume that private enterprize could not be depended on here more than there, and regret I did not place these additional reasons before the Board in the first instance.

6. If the large "tracts" referred to by the Board are the tracts that have been taken up for Casuarinas, I would take this opportunity of submitting, for consideration, whether they really affect the argument.

7. When Casuarinas have to be transplanted, watered for the first year, and are capital timber when grown, I doubt if they will be of much avail as regards the fire-wood market.

No. 6,745, dated 12th October 1864.

Order by the Board of Revenue, Madras.

ORDER.—Ordered to be submitted to Government, in continuation of the Board's Proceedings quoted by the Collector.

No. 2,061, dated 10th November 1864.

Order thereon by Government of Madras, in the Revenue Department.

1. In his letter of the 28th April last, Mr. Dykes addressed Government on the subject of fixing the charge for Government fire-wood with reference to the cost of production, as the only means of leading the people to grow fire-wood, and so re-place the rapidly decreasing supply.

2. Mr. Dykes was thereupon requested to furnish Government with information as to the cost of production, &c.

3. This information is submitted in his letter of the 25th June last, to the Board of Revenue, whose views on the subject are contained in their Proceedings of the 16th September. In his last letter of the 23rd idem, Mr. Dykes furnishes explanations on a part of the Board's Proceedings.

4. Mr. Dykes estimates the average assessment and cost of guarding per acre to be 8 Annas for the former, and 4 Annas for the latter annually. And, as he states that copse renews itself in seven years, the total expenditure for assessment and guarding would be Rupees 5-4-0 per acre, exclusive of interest on the outlay. Of the important item—planting—Mr. Dykes gives no estimate at all. The produce of an acre he estimates very moderately at ten cart-loads, which, at the wholesale price now ruling in the town of Nellore, would realize Rupees 25. The charge for felling is said to be 8 Annas per cart-load, or Rupees 5 per acre, so that the grower would, in the seventh year, have nearly Rupees 15 per acre, out of which to realize expenses of planting,

conveyance to market, interest, and profit. In the absence of any information, as to the cost of planting, these calculations are obviously of little use.

5. Mr. Dykes on the data he has obtained makes two propositions.

6. The first is that the Government charge should be raised from 5 Annas to 12 Annas per cart-load, which would at least cover the cost of guarding and assessment. Mr. Dykes' calculation of these items is higher than it should be, as scrub jungles would rarely bear so high an assessment as 8 Annas per acre, and the jungle renews itself in seven, not ten years. But, on the other hand, he omits the value of the wood as it stands. There can be no doubt that, if Government allow fire-wood to be cut in their jungles for less than it can be grown, private individuals cannot afford to grow it. The Board are averse to any enhancement of the price, but the Government consider that Mr. Dykes' arguments are sound, and though such a sudden rise, as from 5 to 12 Annas would be too much, the price might very reasonably be raised to 8.

7. Mr. Dykes' second proposition is that he should be allowed to commence growing fire-wood for the inhabitants of the town of Nellore. The Talook Officers calculate the annual consumption at two cart-loads (of 1,200 lbs.) each per head, the Sub-Collector, Mr. Morris, adopts the same rates, while the Deputy Collector, in the Salt Department, gives 4½ as the rate. The lower of these rates gives 2,000 cart-loads as the consumption of 1,000 people; but Mr. Dykes for the present desires to raise only 750 cart-loads. The population of Nellore being 25,000, an area of 17,500 acres would be required to ensure a steady supply. Mr. Dykes, therefore, wishes to take up this extent of land within a radius of ten miles, planting 2,500 acres annually. He advocates, eventually, similar arrangements in the neighbourhood of every large town. Calculating at the rate of 700 acres for every thousand of the population, and taking seven years as the period of re-growth, Mr. Dykes estimates that 3,85,000 acres should be under wood; while the present area is only 350,000 acres.

8. The Government cannot undertake the obligation of providing fire-wood for the people throughout the country (for of course the Nellore District could not alone be thus treated), and such a measure, as Mr. Dykes proposes, would most effectually shut out private enterprize. All experience shows that Government cannot accomplish such undertakings so successfully or economically as private individuals, and it would be most impolitic on the part of Government to monopolise a branch of industry which hereafter will attain considerable importance. But while thus declining to entertain Mr. Dykes' proposal in its integrity, the Government recognize the importance of the subject, and appreciate highly the interest he has evinced regarding it. They consider it very desirable that an example should be set to the people, and that to the extent necessary for this purpose, as well as for the acquisition of really reliable information on the subject of growing fire-wood, Government should take the initiative. They resolve, therefore, to instruct Mr. Dykes to take up 200 acres of suitable land in the vicinity of Nellore, and to commence at once a series of systematic experiments, as to the best description of tree, the best mode of planting, the proper number of trees to the acre, the best age at which to cut, &c., &c. He will be supplied with seeds and plants on application, and the necessary funds will be placed at his disposal.

9. The concluding paragraph of Mr. Dykes' letter, and the calculation in paragraph 21, show that the fire-wood tax is not really levied with any stringency. This should be remedied.

From the Government of Madras, to the Secretary of State for India, dated 20th December 1864, No. 4.

1. We have the honor to forward the correspondence marginally noted, which has passed between ourselves, the Board of Revenue, and Mr. Dykes, the Collector of Nellore, regarding the growth of fire-wood for the people.

Proceedings of Government, 6th May 1864, Nos. 58—9.
" " 10th Nov. " " 113—15.

2. Mr. Dykes' proposals are stated in our Proceedings of 10th November 1864, No. 2,061, to which we beg to refer you.

3. After a careful consideration of the subject, we remarked that the Government could not undertake the obligation of providing fire-wood for the people, and that such a measure, as Mr. Dykes proposed, would most effectually shut out private enterprize. While, however, thus declining to entertain Mr. Dykes' proposal in its integrity, we considered it very desirable that an example should be set to the people, and that to the extent necessary for this purpose, as well as for the acquisition of really reliable information on the subject. Government should take the initiative. We have, therefore, instructed Mr. Dykes to take up 200 acres of suitable land in the vicinity of Nellore, and to commence at once a series of systematic experiments, as to the best description of tree, the best mode of planting, the proper number of trees to the acre, the best age at which to cut, &c., &c.

4. We shall keep you acquainted with the progress of the experiment.

From the Secretary of State for India, to the Government of Madras, dated 25th April 1865, No. 18.

I have considered in Council the Despatch from your Excellency in Council, numbered 4, Miscellaneous, Forests, and dated the 20th of December last, reporting your proceedings on a proposition of Mr. Dykes, the Collector of Nellore, to plant a sufficient extent of ground to enable you to supply the whole District of Nellore with fuel.

2. Whilst you commended the interest taken by Mr. Dykes, in this important subject, you very properly rejected this very extensive scheme, which you thought would be a departure from the proper functions of your Government which would effectually stop private enterprize.

3. This is a result which, as I remarked in my Despatch No. 18, of the 9th of April 1864, I should much deprecate, and I accordingly approve of your having rejected it.

4. The increasing want of fuel, and the destruction which has taken place among the Government woods from which it was formerly supplied, are, however, very serious matters, which, at the present moment, can hardly be left to private enterprize entirely to rectify. I approve, therefore, of the limited experiment of planting 200 acres, which you have sanctioned, as an example, and, in order to try what kinds of wood are most remunerative and best adapted to the purpose; and I shall not object to your increasing this extent, should you think it desirable to do so. Should this experiment have the desired effect of producing private enterprize, your Government will always have it in your power, and be willing to make over the plantations to individuals or Companies on proper terms, reserving always a sufficient extent in the Forest Department to prevent an undue destruction of material which it may have taken generations to grow, and which it is, therefore, the duty of Government, in some measure, to husband.

5. The increase in the tax on cut-wood, from five to eight Annas, seems justified by the circumstances, and you properly directed that it should be strictly collected.

6. I have no official information on the plantation of large tracts near Madras with Casuarinas by private individuals, to which the Board of Revenue refer, but which Mr. Dykes, for reasons not very clearly explained, does not think affects the question of the supply of fire-wood. I shall be glad to learn to what extent, and with what object, the plantations referred to by the Board have been made.

No. 1,289, dated 13th June 1865.

Order thereon by the Government of Madras, in the Revenue Department.

1. Communicated to the Board of Revenue and the Officiating Conservator of Forests, with reference to the Proceedings of Government, 10th November 1864, No. 2,061.

2. The Despatch of 9th April 1864, No. 18, referred to in paragraph 3, was communicated with the Order of Government, 23rd July following, No. 1,307.

3. The Board's attention will be called to paragraph 6 of the present Despatch, and they will be requested to obtain and submit the information therein required.

From the Collector of Nellore, to the Secretary to Government of Madras, Revenue Department, dated 20th February 1866, No. 7.

1. I have the honor to report, for the consideration of Government, the steps I have taken towards carrying out the Order of the 10th November 1864, to take up 200 acres of suitable land in the neighbourhood of Nellore, and commence at once a series of systematic experiments as to the best mode of planting wood.

2. I also beg to take this opportunity of acknowledging the receipt, in due course, of a copy of the Despatch of the 25th April 1865, from the Secretary of State for India, approving of the experiment the Government had ordered to be made, and observing that there should always be reserved, in the Forest Department, a sufficient extent of wood that it may have taken generations to grow, and it is, therefore, the duty of Government in some measure to husband.

3. In the same Despatch, the Secretary of State observes, that I have not very clearly explained, why I am of opinion that the Casuarina plantations near Madras do not affect the question of the supply of fire-wood.

4. And in submitting what has been done towards carrying out the experiment ordered by Government, I will do myself the honor to report, with reference to the Despatch from the Secretary of State, the steps that have been taken towards husbanding wood, as well as explain in detail, why, I think, Casuarinas do not affect the general question.

5. In planting I have kept the following objects before me:—

I.—To determine the best tree for the purpose.
II.—The best mode of preparing the ground.
III.—The best mode of planting.
IV.—The best time for cutting.
V.—The best distance at which to cut.
VI.—The expense per acre of each kind of wood.
VII.—The produce per acre.
VIII.—The net profit per acre, all expenses being shown in full detail for this purpose for each experiment, and the people being encouraged to come and see the experiments, and learn the expense and and results as the work progresses.

6. On the receipt of the order under acknowledgment, I lost no time in selecting the land, but before I could begin planting, it was the first week in December, and the rains were nearly over for 1864-65. I have, however, had the whole of the current season to date, and this report embraces the operations of 15 months.

7. The land selected for planting wood is about 4 miles from Nellore; it is to the west of a drainage into the Nellore tank, and it forms part of a large extent of copse that belongs partly to the township of Nellore, partly to five villages that bound Nellore to the southward and westward.

8. I had observed on one occasion in Nellore that a quantity of young wood had come up in a piece of ground round a gentleman's house that had been cropt with Jonna, *(Sorghum vulgare)*, and then left to itself. The little time left me in the first instance suggested the trial of a similar plan for the plantation; and turning up roughly 100 acres with the plough, I sowed 50 acres with

jonna, green gram, and jungle seeds, and 50 acres with jungle seeds alone. There were a few showers whilst the ploughing was going on, but the rain then stopped; and the result of this attempt to plant wood was that the jonna and green gram made a small show for a time, and then withered away, whilst the jungle seed put down, as shown in the margin, did not come up at all. There were seven kinds of fire-wood, one of timber. The cost of this experiment may be estimated at ploughing Rupees 167, seed Rupees 23, in all Rupees 190, which is, however, only an estimate, as the experiment was made by the ryots of the villages already referred to, and others at my request, and their own expense.

Botanical names.
Glycosmis pentaphylla.
Strychnos Nux Vomica.
Butea frondosa.
Vitex arborea.
Maba buxifolia.
Elæodendron Roxburghu.

9. Last May two gardeners* were sent from the Agri-Horticultural Garden in Madras to carry out the experiment with the aid of nurseries, and in a more systematic manner; and when half an inch of rain fell in July, operations were commenced.

* On a monthly pay of Rupees 10 and 8, respectively.

10. On the land that had been already broken up, we laid out 30 acres, and spent Rs. 132 in clearing the ground, and forming roads and paths, so as to divide each acre into two parts, half to be cultivated by ploughing, half by digging; and during the early rains, I may add, the ploughing was again done by the ryots at their own expense.

11. To trench the land would have been so expensive, and so difficult for want of labour when the rain falls, and crops are being put down, that I did not attempt it. The digging was confined to loosening the earth at a cost of Rs. 10, and stippling in the seed, a small expenditure, which was further increased by ploughing a portion of the land again in November.

12. For the nurseries, it was requisite to have a well which was sunk in August at a cost of Rs. 117.

13. And I may conclude this portion of the report in a few words. We have not been much more fortunate this year than the last. After some 20 different attempts in the 30 acres, we have scarcely any thing above ground; and in the nursery it is the same. The season, it is true, has been against us, and the seed was also too old. But the principal reason is probably that, under the most favorable circumstances, it is a difficult matter to plant wood successfully in the plains of India, save at a heavy expense, and the longer we neglect the wood we have, the more difficult we may infer will be re-production. There is nothing to prevent the sun burning the rain out of the ground as soon as it falls, and with no moisture, vegetation becomes impossible.

14. I give as an Appendix a Memorandum showing the kind of seed sown in each half acre, when it was sown, whether it germinated, and if so, when, and what has been the subsequent progress. The *Inga dulcis*, *Parkinsonia*, the different kinds of *Acacia*, and the *Azadirachtâ Indica* came up, and are now growing, but the growth is very slow; and the water in the well being brackish, will, I fear, try the young plants in the nursery. We, however, may hope for better seasons; I will see to the seed being fresher this year: and although I feel reluctant to go to any expense, the ground shall be this year tilled more carefully, and it is possible the water in the well may improve, and results be more favourable than hitherto.

15. There is one exception to the difficulty I have experienced in attempting to plant wood, and that is the Casuarina, when the plantation is on the coast. I have not attempted to grow Casuarinas in the experimental plantation, as the ground is not favourable; but at Krishnapatnam and at Kottapatnam near Ongole, they have been put down in large numbers; in the latter case at the cost of the Conservancy Fund, and are coming on wonderfully well. At Kottapatnam, we only commenced last year, and part of the trees, about

3,000, have been put down as a tope 3 feet apart, so as to be removed as they grow up by alternate trees for fire-wood, and finally left to grow, with the aid of pollarding,* as timber and firewood together. The rest of the trees have been put down as an avenue, and I am sorry to add, by a mistake, at the same distance apart. At Krishnapatnam, the experiment dates from 1860, in which year it was, I think, that I brought from Madras some young trees that are now giving us the seed from which the Kottapatnam trees have been grown, and this year the fishermen opposite to Krishnapatnam have raised, they tell me, 60,000 more young trees in rice beds. These fishermen have taken to the cultivation freely; they are covering the sands with young plants they raised similarly last year, and the deposit from which, will, in time, prevent the sand drifting; and these same men are ready to sell me as many young trees as I require for distribution at Rs. 20 the thousand.

* I have seen the Casuarina sprouting again when it had been cut down at Krishnapatnam, and presume it can be pollarded with success.

16. The Casuarina does not, however, thrive inland, so far as I have tried it; and whilst I will continue the experiments, and endeavour to ascertain, by actual planting, what is the best mode of preparing the ground, and planting other descriptions of wood, it is from the preservation of the copse we have, that I hope correct information may before long be gathered, and submitted for the consideration of Government, as to the points to be attended to independent of planting, viz., the best tree for fire-wood; the best time for cutting; the best distance at which to cut; the expense per acre so far as preserving is concerned; the produce per acre; and similarly the profit.

17. As I have already stated, the 30 acres selected for planting, form part of a large extent of copse. In this copse I have marked out, to the westward of the plantation, 7 acres. In these 7 acres the number of different kinds of indigenous wood were found, on counting, to be 44; and we have merely to protect this wood, and thin systematically to obtain very shortly a clear idea of what woods grow most rapidly, and in due course what is the proper mode to treat them, and what is the return to be expected.

18. With such a fine stretch of wood ready to hand, it seemed unwise to allow it to be any longer neglected, and, in the language of the Secretary of State, unduly destroyed. In August last, when the early rains had begun, I put on four wood-men as watchers. The area is said to be 6,000 acres. It includes the hill to the westward of the Nellore tank, save that portion on which the Narasimmakonda Temple stands, and a portion that is held as Inam; and the land is so situated that, with the aid of the Village authorities, I trust the four wood-men will be able to watch it successfully.

19. When the cattle tax is abolished on the introduction of the new settlement, and we are able to exclude cattle so far as necessary, the experiment will be still more complete. I have made wood roads 30 and 15 feet wide to facilitate watching, as well as hereafter be available for the measurement and removal of the wood. These roads have been formed simply by cutting down the wood, stubbing the roots after the rains, and levelling.

20. I give, in the subjoined statement, the names of the various trees and shrubs found in the 7 acres, distinguishing those that are thorny, forming it seems to me a much larger portion of the copse than is usual in other countries; and having removed some vegetation, of the propriety of removing which there could be no doubt,* the remainder of the wood I had also separated, and arranged for preservation in the several acres as the thinning goes on. As I am to have the pleasure, in a day or two, of a visit from the Conservator of Forests, I will go by his opinion in the matter, and submit in my next Report, the decision come to which is, perhaps, the

Conservancy.

* 1. Euphorbia Antiquorum.
2. Kantara.
3. Koriavla (*Acacia Intsia*).
4. Prickly pear (*Cactus Indicus*).

wiser course in other respects; for the thinning has decidedly as yet had an unfavorable effect on the wood left, and the result has so far illustrated the advantages of keeping the land covered :—

Botanical names of the Trees.	Description.	Total. Number.
Bauhinia racemosa	Timber	189
Canthium parviflorum	Firewood, thorny	450
Hymenodyction excelsum	Timber	92
Elæodendron Roxburghii	Ditto	13
———	Firewood	35
Acacia speciosa	Timber	2
Balanites Aegyptiaca	Firewood	4
Zizyphus Xylopyrus	Timber, thorny	79
———	Firewood, do.	540
———	Ditto	20
Gmelina Asiatica	Timber	42
Peltandra	Firewood	2,4 0
Vatica Laccifera	Timber	106
Prosopis specigera	Do., thorny	9
Grewia rotundifolia	Firewood	72
———	Ditto	419
———	Ditto, thorny	1,125
———	Firewood	811
Sapindus Emarginatus...	Fruit	62
Randia Dumtorum	Firewood, thorny	618
———	Ditto	454
———	Ditto	3
Anisonema multiflor	Ditto, thorny	928
Dalbergia paniculataa...	Timber	...
Mimusops hexandra	Ditto	116
——— —	Firewood	60
——— ———	Do., thorny	1,242
——— ———	Firewood	430
———	Ditto	4
Cassia auriculata	———	185
———	Firewood	54
Phyllanthus	Do., thorny	290
Acacia Leucopheea	Ditto	89
Diospyros Chloroxyeon...	Ditto	898
Maba Buxifolia	Firewood	7,604
Azadirachta Indica	Timber	7
Dichrostachys cinerea	Firewood, thorny	110
	Total ...	19,582

Abstract.

Timber	9	Thorny	3
Firewood	26	,,	13
Fruit, &c.	2	,,	...
	37		16

21. The cost of making the wood roads has been Rupees 393; the marking out the seven acres, forming roads to them, and clearing away useless vegetations, has cost Rupees 52; the woodmen's pay has been Rupees 93; and with sundries, which includes paintings of the different kinds of trees to be kept, the total expense for preserving what we have got, has been Rupees 460. Including the pay of the gardeners, and the charges for sinking a well, the total cost incurred in planting has been Rupees 450; and thus, as shewn in the annexed Memorandum, the total expenditure incurred, for both experiments to date, has been Rupees 1,004-5-0; and, in requesting that the Government will be pleased to sanction the said expenditure, I beg to state that, at the close of the current official year, I will submit a Supplemental Memorandum of expenditure to date, and show to what extent recoveries have been made by the sale of the copse cleared to make wood-road, &c.

22. The pay given to the woodmen is Rupees 4 a month. The cost, a year, therefore, for watching for four men, is Rs. 192, in round numbers Rs. 200, or Rupees 1,400 for the seven years in which the copse may be expected to become fit for cutting; and, supposing that the 6,000 acres yielded only a cart-load an acre, at 8 Annas the cart-load, the present selling price, the return would be more than twice the cost of conservancy. Ten cart-loads or Rupees 5 an acre, is probably nearer the mark as regards produce and net profit; and the result of the experiment, as regards the town of Nellore, would simply be that, paying 8 Annas the cart-load, wood could be brought, say 60,000 loads, within five miles of the town, instead of having to send for it 20 miles, and pay an additional Rupee for cart-hire. The towns-people would, in fact, save Rupees 60,000.

23. It would, of course, be advisable only to cut a portion of the 6,000 acres at the end of the seven years. When the area is carefully measured, it may probably be found to be 7,000 acres. In that case, 1,000 acres could be set apart for consumption each year, so that the whole block should never be denuded at the same time, and the wood on the land should help the re-production of what has been cut; and I merely suppose the case of the whole of the wood being cut, to show what could be reckoned on as capable of being realized by preservation with reference to expenditure. I have not alluded to assessment: for, with such a margin by the sale of the fire-wood, it seems scarce necessary to enter into details; and, in like manner, I refrain from forming any estimate as to the increase in the produce per acre for those portions that are left on the land a longer period than seven years.

24. I was asked yesterday by a native, whether the wood was for the natives after I had preserved it, I said yes, paying for the same; and I pointed out that the difference was, by preserving I could give him, paying for the same, what, without preserving, he could not get though willing to pay, and I could give him at his door, what it is contrary to the experience of the past to suppose that he could then obtain at a distance of over 20 miles as at present.

25. To ascertain what is the actual extent of copse, as well as timber, now available in this District, I am having a systematic inquiry made at the cost of the Jungle Conservancy Fund. I am also setting apart in the settlement what wood can be apparently husbanded for the general use. As soon as I have got in the details, I propose to address the Board of Revenue on the subject, and submit such measures as I can for conservancy, in accordance to the views laid down by the Secretary of State; and south of the Pennair, it will be found, I believe, that we have tracts of fire-wood that could be made available for the Madras market when the 18 miles of canal to Krishnapatnam is completed, and the Krishnapatnam back-water brought into communication with the Pulicat Lake.

26. Making wood-roads through the wood tracts I refer to, as I have made them in the 6,000 acres, is one way in which, I trust, much may be done towards conservancy, whilst facilitating the carriage of the wood itself. With a proper distribution and lining out of these roads, it is possible to obtain a precision in restricting the cutting of wood to the area in which leave has been given, that is difficult to obtain otherwise. Those who receive permission to cut can be required similarly to bring in the wood by these roads, which thus afford facility of watching as well as of carriage; and, trusting that the measure will have the Board's approval I have commenced a wood-road 30 feet wide from Chemalgunta to the Eastern Ghats, which passes through the southern portion of the 6,000 acres, and is now becoming of use for the traffic of the village generally, as well as marking out the wood to be preserved, &c.

27. It now only remains for me to explain in detail why I am of opinion that the plantations of Casuarina, that have been formed near Madras by private individuals, do not affect the general question, and why I believe that private individuals will not undertake to supply the public with fuel. In my letter of the 23rd September 1864, I gave the chief reason on which my opinion was based, viz., the fact that, in other countries where the people depend on fire-wood for their fuel, it is on the Government that the duty devolves of preserving

a sufficient supply. If in France and Germany, where there is more moisture, and wood can be grown more easily, the Government Forests are the chief sources of supply, it seems little use to hope that this Government can with safety avoid a similar responsibility; whilst, as regards the particular instance brought forward as a proof to the contrary, I was of opinion that the rapid growth of a particular kind of tree did not affect the general question, *first*, because the tree specified only grows so rapidly on the coast; *secondly*, because the price it will fetch as timber places it out of the reach of the bulk of the population as fuel; and *thirdly*, because grown in the neighbourhood of Madras, it may be with the avowed object of being used as fuel, it by no means follows that similar steps will be taken where there is not so large a demand, and, in such neighbourhoods, the question of re-production, if neglected now, may have to be taken up hereafter, under such adverse circumstances, as may baffle the attempts of either private enterprize or Government.

28. It is needless for me to refer to the effect of wood in preserving moisture in the ground; and, in submitting in detail the reasons why I am of opinion that the Causarina movement in the neighbourhood of Madras, and on the sea-coast, does not affect the general question, especially when no such rapid growing tree has been found inland, I would respectfully submit, as an additional reason for husbanding the wood we have got, the effect that such a measure must have on the country at large, and more than all on our Irrigation works. That the Ryots, when they see that the wood is brought nearer to their homes, will thank us for the exercise of an authority that prevents every one cutting what remains as they like is, I think, a matter of little doubt. That those who do wish to plant trees, and that crops generally will be benefitted by wholesome restrictions on the present system of denudation, is perhaps equally clear; and that more moisture being retained in the ground, the channels and tanks for irrigation will be better supplied and kept running longer, seems to follow as a matter of course, and is an additional reason for immediate action, if such were required, when the question at issue is of such vital importance as the supply of fuel.

No. 689, dated 21st March 1866.

Order thereon by Government of Madras, in the Revenue Department.

1. The Government regret to learn that Mr. Dykes' planting experiment has been a failure. The season, however, was adverse, and no correct conclusion can be formed from a single year's trial.

2. The experiment of simply preserving jungly tracts promises to be very successful as well as economical, and Mr. Dykes' account of the spread of the Casuarina along the coast, and the extensive manner in which the villagers have commenced growing it, is most satisfactory.

3. Payment of Rupees 1,001-5-0, the expenditure incurred in Mr. Dykes' operations, is sanctoned.

4. Mr. Dykes' Report will be forwarded to the Secretary of State. His future Reports should be submitted through the Board of Revenue.

From the Conservator of Forests, to the Secretary to Government of Madras, in the Revenue Department, dated 24th April 1866, No. 1,773.

1. *Casuarina Plantations.*—Adverting to Proceedings of Government, dated 5th July 1864, No. 1,155, in which the Officiating Conservator was instructed to take an opportunity of visiting the Nellore District, and conferring with the Collector as to the best means of conserving the timber in that District, and of restoring the tracts which have been denuded of timber, I have to report that I proceeded on the 20th February by the North Coast Canal, observing *en route* the numerous Casuarina plantations which have sprung up during the last few years at Ennore, Pulicat, Striharikota (avenues 9 feet apart), Dugarazapatam (topes), and Kistnapatam; these are generally thriving in a remarkable manner, and have much altered the appearance of the coast scenery. This tree is well suited to the locality, and grows freely in the loose and sandy soil; wooded knolls are seen where a few years ago there was nothing but a barren tract of drifting

Proceedings of the Madras Government, Revenue Department,
15th November 1866.

sand. The belt of Casuarina constitutes a fringe and partial protection against the encroachment of the sea.

2. At Ennore and Pulicat, the plantations are the result of private enterprize (European and Native). The great demand for fuel in Madras induced one or more Companies to take up these plantations as a pecuniary investment. Further north, the topes and avenues are planted by Government. The rate of growth is certainly rapid, and the tree should be planted on the coast, beside Salt Chowkees, Police Stations, Dâk Bungalows, and wherever there is a trustworthy person to watch them.

3. *Kistnapatam.*—At Kistnapatam there are several large topes planted by the Collector in pure sand, and the fishermen are extending the cultivation near their villages along the coast. I was assured that they had planted 60,000 trees. The appearance is various, in some places the stem is straight and promising; in others the tree is "stag-headed." In no case was there a marked failure, but the plants require water during the first and second seasons; this is easily obtained, being everywhere within three or four feet of the surface. Trees of four years' growth average eighteen feet in height, and fourteen inches in circumference, at four feet from the ground. I agree with the Collector that this highly satisfactory growth of Casuarina does not affect the general question of fuel supply *as regards Nellore*. The straight stems will be used in house-building and pile-driving, but the wood is hard and difficult to split, which fire-wood dealers consider an objection.

4. *Striharikota.*—I have examined the receipts of the Striharikota jungles for fifteen years, the results are satisfactory. The average of ten years, *viz.*, from 1850 to 1859, is Rupees 8,926, but for the last five years the average is Rupees 14,432, the particulars are as follow:—

	Rs.	A.	P.
1860-61	14,633	2	0
1861-62	6,924	14	2
1862-63	14,618	2	7
1863-64	15,740	13	4
1864-65	19,214	2	8

This result may be attributed partly to the rules passed in 1859 for regulating the felling by compartments, and partly to the enhanced value of fuel and the usufruct of the jungle products which the renter enjoys.

5. *Mr Dykes' proposal.*—It is known to Government that Mr. Dykes has taken a lively interest in arboriculture, and proposed a scheme for providing fire-wood for the people of Nellore. The Government, recognizing the importance of the subject, sanctioned a series of systematic experiments on 10th November 1864. It is to be remembered that the population of the town is 25,000; that the climate is very dry, and the growth of jungle very slow; those who know the station will admit that there is no superfluity to warrant waste of fuel or neglect of conservancy. The principal trees seen in the vicinity are the Palmyra and Date trees, Babool, Mango, Neradu, (*Eugenia jambolana*), Neem, and Tamarind.

6. *Fire-wood experiment.*—I visited the place selected for the experiment four miles from Nellore, which may be described as a nearly level tract of 6,000 acres of unpromising aspect, and entirely waste, (having a considerable resemblance to the Rukhs or fuel reserves at Mooltan) belonging to the town and adjoining villages. The soil is poor, about one-half foot deep overlying yellow laterite; here and there it is pure sand and gravel. At present the vegetation consists of low scrub jungle or copse, averaging three or four feet in height, and with only three mature trees standing in the whole area.

7. *Experimental acres.*—Seven experimental acres are marked off by boundary stones with cart tracks at right angles; these are being treated in different methods, as described in Mr. Dykes' Report, recorded in Proceedings of Government, 21st March 1866, No. 331, the *Cactus*,

Euphorbia, Cissus, and other creepers being cleared away, and the more promising arborcous forms allowed to stand; these are—

Neem	*Azadiruchta Indica.*
Buckthorn	*Rhamnus.*
Babool	*Acacia Arabica.*
White bark	*Acacia leucophlea.*
Siriss	*Acacia speciosa.*
————	*Gardenia.*
Country Plum	*Eugenia jambolana.*

Mr. Dykes had a portion of the tract ploughed by neighbouring villagers, who reaped a crop of Jowar, *(Sorghum vulgare)* seeds of *Inga dulcis. Cassia florida* and *Acacia speciosa,* &c., were then sown broad-cast, and a thin crop of seedlings is the result; some have been killed by drought, others were looking yellow and delicate from the fierce heat. Altogether the Collector considers that conservancy is cheaper and more successful than planting. Mr. Dykes has arrived at the conclusion admitted by all Forest Officers, that the first essential to successful growth of timber or fuel is the strict exclusion of cattle and goats. The different appearance of the jungle simply shut up, from that of the adjoining waste frequented by cattle, is very striking, shewing the extent of re-production when the natural shoots are allowed unrestrained growth.

8. Fences there are none. The authority of the Collector and the pound are found to be a sufficient protection. There are four watchers, one at each corner of the tract, and a cart-road is kept clear of brush-wood on all the four sides. There are several cross roads or ventilating paths; one small Inam village stands in the tract.

9. The establishment consists of two Native gardeners, trained at the Madras Agri-Horticultural Society's Garden, with four watchmen. This fire-wood experiment carried on by Mr. Dykes is of great interest, and, if successful, will be most encouraging. The supply of fuel near many of our large cities is scanty, and is brought from great distances. By the formation of reserves, such as the one now being formed at Nellore, I believe that much relief may be afforded. All that seems necessary is that waste jungles be conserved in suitable localities, and not entirely given up to cultivation.

10. Government have repeatedly recorded their decision, that it is not their duty to grow fire-wood; but it seems incumbent upon the State to manage the jungles, so that they may yield indefinitely an adequate supply of fuel, and to allot lands specially suited for the growth of fuel as has been lately ordered at Walliar in this Presidency, and as has been sanctioned at Poona and Dharwar in Bombay, and in the Punjab and North-West Provinces. The old Rukhs and Shikargahs of former days, the hunting grounds of Sikh Sirdars and Sind Amirs, being converted into reserves for steam fuel. Whenever private enterprize undertakes the work of raising fuel, Government should withdraw at once.

11. The oldest fire-wood plantation in the Madras Presidency is the Australian Acacia preserve near the Wellington Barracks, where the growth of fuel and financial returns are satisfactory.

Planting in Nellore District generally.—The results of Mr. Dykes' planting operations Palmyra and Casuarina) in the District generally up to 1865, are as follow :—

PALMYRA.

Actually grown..			Put down.	Cost.
				Rs.
20,000	Gudur Talook	Palmyra	76,805	268
1,300	Rapur ,, ...	Ditto	5,330	...
10,000	Nellore	Ditto	36,357	109
4,000	Atmakuru	Ditto	7,085	39½
19,512	Karali Talook...	Ditto	...	...

The sum paid is Rupees 25 for planting and watching 1,000 Palmyras.

The entire number of Casuarinas growing is not known, the expenditure was Rupees 519.

12. *Irrigation Company at Someshwar.*—The resolution of Government that the Irrigation Company should pay for fuel at Someshwar Anicut the same rate as the general public, has acted well; this policy should be invariably adopted in all Departments of the State and with all corporate bodies.

Recording Forest rights.—Mr. Dykes, with the sanction of the Board of Revenue, is employing six Native Inspectors to record, in a prescribed form, the forest rights of the villagers. The information so collected is to be at the disposal of the Forest Department.

Ghât Forests.—It is only about Oodiagherry and in the Ghâts, north-west of Nellore, that there are forests of sufficient extent to be taken charge of by this Department. There is reason to believe that wood clandestinely felled in Kurnool is carried across to the Nellore District, and the best manner of preventing this has been the subject of correspondence with the Collectors of both Districts.

No. 1,154. dated 15th May 1866.

Order thereon by the Government of Madras, in the Revenue Department.

1. Communicated to the Board of Revenue and the Collector of Nellore.

2 The Government will be prepared to take into consideration any recommendations from the Conservator of Forests and Collectors for the reservation of jungle tracts.

3. The Board will impress on the Collectors of Maritime Districts the importance of planting Casuarina along the sea-shore, and especially in the neighbourhood of Salt Stations, where the Salt Superintendents and Deputy Collectors can supervise operations.

From the Government of Madras, to the Secretary of State for India, dated 5th June 1866,

No. 2.

1. With reference to the correspondence marginally noted, we have the honor to forward the accompanying letter from Mr. Dykes, the Collector of Nellore, reporting the steps taken by him for planting wood in that district, in pursuance of our Order of 10th November* 1864, No. 2,061. Our Proceedings on this letter, dated 21st March 1866, No. 689, are also forwarded.

To Home Government, dated 20th December 1864, No. 4, Miscellaneous - Forests.
From ditto, dated 24th April 1865, No 18, Revenue.
Proceedings of Government, dated 21st March 1866, Nos. 83 —2

* Forwarded with Despatch of 20th December 1864, above quoted.

2. The experiment, so far as *planting* is concerned, has, you will observe, been a failure. The season, however, was adverse, and no correct conclusion can be formed from a single year's trial. The result of merely preserving jungly tracts has been of a more promising character.

From the Secretary of State for India, to the Government of Madras, dated 16th August 1866,

No. 29.

1. I have had under my consideration in Council the Despatch from your Excellency in Council, numbered 2, Miscellaneous, Forests, and dated the 5th of June last, in which you report your proceedings on Mr. Dykes' account of the experiment in planting trees for fuel and timber, and preserving jungle tracts, which was sanctioned by Secretary Sir Charles Wood last year.

2. I agree with your Excellency in Council that no correct conclusion can be drawn from the failure of the plantations in a single year, especially if in that year the season was, as it seems to have been, adverse to the object in view. It is probable, however, that, for some time at least, the great source of supply will be derived from the preservation of the naturally formed jungles, and the measures taken by Mr. Dykes for this purpose seem to have been both judicious and

economical. The small outlay which you have sanctioned seems to have been well employed, and Mr. Dykes deserves commendation for the interest which he has displayed on this subject, and the judgment with which he has planned and executed his project.

3. The account of the success of the Casuarina plantations near Madras, and the manner in which the natives have followed the example set them, is very satisfactory. This experiment, it may be hoped, will have a similar result to that which has attended the like measures on the coast of France, where the inroads of the sand have been stopped by the planting of the *Pinus maritima*, and a large extent of country been thereby brought under profitable cultivation, besides the considerable revenue derived from the plantations themselves.

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1. OBSERVATIONS.—It appears to His Excellency the Governor General in Council that these proceedings, relating to an experiment for the growth of mixed coppice at Nellore, in the Madras Presidency, may be usefully circulated.

2. There are large towns, especially near Railways, where it is probable that the formation of reserves judiciously selected, and of an area proportioned to the population, might be attended with great benefit in securing a supply of fire-wood for the people. It will be seen that the result of merely preserving natural jungle from the injuries of cattle and trespassers has hitherto been more successful in Nellore than systematic planting for the growth of fire-wood.

ORDER.—Ordered, that copies of these Observations, and the papers read, be circulated for information to the several Local Governments and Administrations.

Ordered also, that a copy of the Observations be forwarded to the Government of Madras.

(Signed) C. H. DICKENS, Lieut.-Colonel, R. A.,
Secy. to the Govt. of India.

No. 340. ORDER THEREON, 15th November 1866, No. 3,104.

Forests, No. 10.

Communicated to the Board of Revenue, the Conservator of Forests, and the Collectors of Districts.

(True Extract.)

(Signed) J. D. SIM,
Secretary to Government.

To the Board of Revenue.
„ the Conservator of Forests.
„ all Collectors.

Exd. S. T. Augustin.

Ft. 3104.
Communicated to the
Board of Revenue, the Conser-
vator of Forests
and the Collectors of Districts
Ld. 15th Nov. 66
14 Copies Letter Bd. of Revenue, No. 16.
4 — Conr. of Forests
19 — To all Collectors

Cir. 6 May 1856 ch 538-557.
" 23 July " " 881-882
" 10 November " 113-116
Indian Gaz. 1854 ch 1854
Cir. 18 June 1855 ch 252-253
From Land Gaz. ch 1857 1858.
Cir. 21 March 1859 ch 531-532
" 14 May " " 265-266.
From Home Gaz. ch 29 July 1856.
Cir. 21 Sept. 1858 ch 572-573

Rec. 1866 Oct. 26
Ref. to Govt. Spec. Letter 3589.
Sir, I am the Order
Yours to
GOVERNMENT OF INDIA.
PUBLIC WORKS DEPARTMENT.
REVENUE—FORESTS.

To

CIRCULAR No. 13 FOREST.

Dated SIMLA, *September* 26, 1866.

Received 26th Oct.

Formation of Reserves for the supply of fire-wood.

1 ch 339 & 340

ch 3101. 15 Nov
With order