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NEW ZEALAND.

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# FORESTS IN NEW ZEALAND

(PAPERS RELATING TO COLONIAL REVENUES DERIVABLE FROM).

[In continuation of H.-3, 1880.]

*Presented to both Houses of the General Assembly by Command of His Excellency.*

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## SUGGESTIONS ON COLONIAL REVENUES DERIVABLE FROM NEW ZEALAND FORESTS.

### TOTAL AREA OF THE CROWN AND PRIVATE FORESTS OF THE COLONY.

THE total area of land at present covered by forest in the whole colony is estimated by Dr. Hector at about 20,000,000 acres ("New Zealand Handbook" of 1879, p. 10). The Crown Lands Department states the total area of Crown forests in the colony to be about 10,000,000 acres (Annual Report, 1879); and a further statement from the same department shows the total acreage of alienations of Crown lands, from the foundation of the colony to March, 1880, to have been 14,126,772 acres. In the following estimates, judging *a priori*, the present total area of the private forests in the colony (exclusive of Maori property) is taken at 5,000,000 acres.

### YIELD OF NEW ZEALAND FORESTS TO THE ACRE.

There is not, as yet, any official information on this point; but the opinion expressed by saw-millers is to the effect that the average yield of New Zealand forests does not exceed 15,000 feet to the acre. However, observations made by Captain Campbell-Walker and Mr. Kirk in Southland forests proved the yield there to be above 30,000 feet to the acre; but in these estimates was included wood which might not have been suitable for the saw-mill. Although the determining of an approximately accurate average yield on 20,000,000 acres of forest may at present be termed an impossibility, still a quantity of valuable wood equal to the cubic volume represented by 15,000 superficial feet may be safely admitted as a moderate average yield to the acre.

### EXTENT OF THE PRESENT DEMAND, MARKET VALUE, ETC.

The conversion of timber at saw-mills in this country of wooden houses, although already and comparatively very considerable, is still constantly increasing. By information afforded in the above-quoted "New Zealand Handbook," we know that the number of saw-mills in the colony was 204 in 1879. The average yearly supply from each of these mills may be approximately estimated at 1,000,000 superficial feet, or say about 200,000,000 superficial feet as the total of the present annual product. (In 1876 the out-turn of twenty-five saw-mills in the Auckland District was officially reported to be 46,000,000 superficial feet yearly.) The quantity of timber yearly cut down for purposes other than those of the saw-mill is enormous, and could not be estimated at less than the cubic volume of the sawn timber. Thus the sawn and round timber annually supplied out of the forests of the colony would together represent a cubic volume equal to 400,000,000 superficial feet of timber.

The average market value of sawn timber at Auckland, Wellington, Dunedin, and Invercargill is about 13s. per 100 superficial feet.

In Wellington, Christchurch, Dunedin, and other cities, firewood is already as dear as, if not dearer than, in any capital of Europe.

Now, by taking the average market value of timber, sawn and round, as 10s. for a quantity equal in volume to 100 superficial feet, the total market value of the timber yearly supplied out of these forests would be £2,000,000.

STATE REVENUES DERIVABLE FROM THE ASSESSMENT OF THE PROPERTY-TAX IN RESPECT OF  
FREEHOLD FORESTS.

As regards the assessment of the property-tax in respect of freehold forests, it will be first observed that the value of cut timber could not of itself, and without the admission into the calculation of other figures under technical rules, serve as a basis for the valuation and assessment of forest areas, both of these, as real and personal property, being respectively but equally amenable to taxation. It may also be remarked that, in our particular case, the cut timber cannot be deemed a revenue arising from the timber-land, it being, in fact, a portion of the capital value of the so far reduced forest-area,—forests in this country not having hitherto been managed for the purpose of permanent supply and revenue, the fellings being simply intended for the immediate realization of the value of the standing trees, and the further conversion of the land into agricultural or pastoral. The Property-Tax Act, however, does not admit any difference, whether the property be personal or real, the Act applying in an equal measure to every description of property, bearing on it in its primitive status, again reaching it in any new form into which it may have been converted. Thus, forest-areas are liable to taxation; so is all cut timber, if converted or not into planks; and so is any marketable article made out of the plank, &c. Therefore, under the Act—which, in its concise form and comprehensive bearing, initiates a fresh principle, presenting a striking contrast to the complicated fiscal machinery of other countries—the only remaining point at issue relates to the mode of valuation which should be made applicable in the special case of forest property for the purpose of State taxation.

The capital value of all property may be determined by the price it would fetch in the market. This is the general rule, the applicability of which does not involve any difficulty as regards personal property; but in the matter of real estates the value of the property has, in the first instance, to be computed upon the net revenue it actually produces, or is capable of producing under proper management, which net revenue being capitalized at the rate of interest obtainable in the locality for investments in land, will show the actual value of the property. Against this rule, it may be contended that in this young colony most of the large real estates have not, as yet, obtained the full development of their productive powers, the inference being that these estates ought not to be assessed on the basis of the revenue they may be capable of producing for the time being, when labour and capital will have completed the cultivation of these estates. But this exception could not rightly apply to New Zealand timber-lands, this particular kind of real property being readily covered by mature produce, available and marketable at any time.

It may be asked whether forests, as well as agricultural lands, are capable of producing permanent revenue, and by what process the compass or extent of the annual fellings has to be determined (from which operation the possible amount of revenue will be shown, and may be compared with that which the timber-land could yield if converted into agricultural). To the first question the answer is that almost the whole of the forests of the Continent are managed for the purpose of permanent revenue, all these woodlands being subjected to prohibitions against clearing, the owners of high timber forests have, therefore, no other alternative but that of restricting their annual fellings in such proportion as will maintain the forest ever growing, as a whole. The cuttings in these forests are carried out by thinnings made on acreages extending so far as the capability of the forest is estimated to allow, thus operating in such manner and to such extent as to secure the self-propagation of the forest, and so to avoid opening large blanks or spaces which would prove fatal to surrounding trees. Besides, this method of thinning will, as a rule, dispense with the fallible and costly process of replanting. The other question may be answered as follows: The proportion of the annual cuttings is dependent on the total cubic volume of all the trees (young and old), which may be estimated from the result of experiments made on several spots representing a fair average of the general yield of the forest to the acre. (1) By multiplying this average yield by the total acreage of the forest, the product will show the total volume. (2.) Next, the most profitable age at which the trees should be felled has to be determined. (3.) Finally, by dividing the total volume by the number of years decided upon as necessary to bring the trees to perfection, the quotient will show the annual cubic volume which may be removed from the forest without imperilling its permanency, or causing any injury to its ever-growing mass of trees.

Should the assessment of the property-tax in respect of the private forests of the colony be made in conformity with the above rough sketch of rules, which constitute the rudiments of forest conservancy, the result would be as follows: Total area of private forests, say, 5,000,000 acres  $\times$  15,000 superficial feet to the acre = 75,000,000,000 feet, as total volume. This, being divided by, say, 125, as the number of years fixed for the perfecting of the trees, will show the possible annual supply or volume to be 600,000,000 feet, amounting, at 10s. per 100 feet, to £3,000,000, less, say, 75 per cent. for expenses = £750,000 net revenue; which, assuming the interest of invested capital to be 3 per cent., will show the capital value of the property (5,000,000 acres of forest) to be £25,000,000 = property-tax (1d. in the pound), £104,166 13s. 4d. = 5d. per acre, which amount per acre should be the average payable on the several classes of forests whose relative value must be determined from local circumstances.

The above demonstration may perhaps be rendered more clear by the use of less formidable figures. Thus, supposing forests to be managed for the purpose of revenue, and that the existing total area of private forests was bought at a price averaging 10s. per acre, then 125 acres of

forest=£62 10s. purchase-money The most profitable age at which the trees should be felled being taken as 125 years, the same period will, of course, be required to reproduce any cut-down portion of the forest: hence, if only  $\frac{1}{125}$  part of the estimated cubic volume on the whole area is cut down, the forest will thus be maintained ever-growing, the youngest seedlings at the time of the yearly cuttings as well as the standing timber all contributing in their turn towards a regular revenue, as well as to the conservation of the forest. The available volume or annual acreage will, in that case, be restricted to 1 average acre, as being the quotient of the total volume divided by 125 years, the period of rotation — viz.: 15,000 feet to the acre  $\times$  125 acres  $= \frac{1,875,000 \text{ (feet)}}{125 \text{ (years)}} = 15,000$  feet to the acre, or, 1 average acre = 15,000 feet.

Fifteen thousand superficial feet at 10s. per 100 = £75 market value, less, say, 75 per cent. for expenses = £18 15s. net revenue, showing the purchase-money equal to an investment at over 30 per cent. interest. Now, if the capital value of the property be estimated from the above net revenue capitalized at 3 per cent, the said value would be £625=property-tax £2 12s. 1d. (5d.  $\times$  125 acres) = £5 as the present *average* value of bush land per acre: provided, however, that forests be managed for the purpose of permanent revenue, and not for that of immediate realization of capital, as is now going on at any rate and risk. It may be remarked that the tax will have the effect of reducing the income to £16 2s. 11d., thus showing the capital value of the property (calculated as above) to be £537 10s., producing a net revenue at the rate of 3 per cent., but also showing the rate of interest on the purchase-money to be 26 per cent. It is a well-known fact that no land cultivation in Europe will produce an income above the average rate of 3 per cent. on the capital invested in lands, and reverting to our colonial circumstances it may suffice to draw attention to the cost of labour here, from which it may be inferred that the net income derivable from landed estates in New Zealand could not be greater than that of Europe.

Although the above computations may appear principally to affect the owners of large forest-areas, still their purport bears more specially upon State interests, for it is in this intricate matter of taxation that just and rational principles should be elucidated and carried out.

It must be borne in mind that forest-areas in New Zealand have not hitherto, as a rule, fetched any other value in the market than the worth of the land after its clearing; therefore expenses attending the clearing have to be taken into account both by seller and buyer. For this reason, amongst others, Crown forest-areas are extensively sold at very low prices, and generally exclusive of the value of the standing timber. These alienations have the inevitable effect of lowering the value of private forest property as well as the quotations of the timber trade, and such depression in the value of a colonial production already affording a circulation of money to the amount of £2,000,000 to £3,000,000 yearly, is also reflecting injuriously upon all other colonial interests.

No doubt can now exist of the inexpediency of disposing of the Crown forests at almost nominal prices, and such a course could not be supported by any other plea than that of an imperative financial necessity, which, however, could be met, with greater advantage to the Treasury and to the colony at large, by other means than by such improvident alienations. Is it not obvious that taxation on private forests (if based on principle, and carried out on a progressive scale), as well as a simultaneous and adequate advance in the price of timber in Crown forests, would have the effect of enhancing the market value of colonial timber, and thereby that of forest property, from which a just and increasing contribution to the State revenue would be obtained?

#### REVENUE IMMEDIATELY DERIVABLE FROM CROWN FORESTS.

The realization of the financial advantages hereafter indicated (not to mention others of no less importance, likewise to result from the conservation and proper management of the Crown timber-lands) is necessarily dependent on the previous observance of two essential conditions: First, that neither forests belonging to the Crown, nor the timber growing therein, should be sold at such prices as would check or affect the increase in value of private property of a like kind, so that the upset price at which Crown forest-lands or their produce may be offered for sale would solely be determined from current market quotations for cut timber, and that the net revenue to accrue from the sales should be calculated so as to be about equal to that which the owners of freehold forests could reasonably expect from their property under like conditions of management, situation, value, &c. Second, that some urgent reforms in the management of the Crown forest-lands be carried out, such as disposing of the standing timber for its contents expressed in cubic or superficial feet, instead of leasing areas of forest, and then relying upon the declarations of the lessees as to the quantities cut down by them, &c.

These reforms would not, at first, necessitate any extra expenditure, although a different distribution of the funds devoted to the forest service may be found expedient, so far as salaries are concerned. In fact, the issue of regulations under the Act, and special instructions to the forest officers and other officials of the Crown lands administration, are the first steps required to be taken for the purpose of securing the conservation of these forests, and for that of realizing, at the same time, a State revenue.

The determining of the value of timber on Crown lands, or rather the fixing of the upset price at which it should be offered for sale, would result from the same computations as previously made in respect of private forests (*vide* page 2) Thus, it has been estimated that

15,000 superficial feet of timber, equal to the full yield of one acre upon an average, are producing a net income of £16 2s. 11d. to the owner of a forest under systematic management. Why should not a like revenue accrue to the State from the sale of its timber standing in equal conditions of value and quantity to the timber on private property? The net income of £16 2s. 11d. arising from the sale of 15,000 feet of standing timber is equal to 2s. 2d., nearly, per 100 superficial feet; and, should the total quantity of timber yearly cut down on Crown lands be taken as 48,000,000 superficial feet, the upset prices averaging 2s. 2d. per 100 feet, this would indicate a revenue to the amount of £53,000 as a minimum, subject to the fluctuations of the timber market.

The above estimate of 48,000,000 superficial feet, set down as the approximate quantity of wood yearly cut down on Crown lands, originates from the single but reliable information on the subject, viz., that the revenue derived from the Crown forest-lands does not exceed £3,000 yearly (Crown Lands Report, 1879). Actual prices for timber standing on Crown lands are—3d. per 100 superficial feet; 20s. for 20 cords of firewood; no charge being made to miners, who may cut indiscriminately as much as they require; moreover, there being no effectual control to check the declarations of the saw-millers, &c., as to quantities cut by them. Under these circumstances, it has been thought that by doubling the amount of the revenue, and putting down the price of all cut timber at 3d. per 100 feet, the result would be nearer to the actual extent of the fellings (£6,000 at 3d. per 100 feet=48,000,000 feet)

No doubt all the figures used in the foregoing estimates would have to be remoulded under official investigation. However, they are intended to indicate a new direction in the forest affairs of the colony, which may be worthy the consideration of our statesmen.

#### RECAPITULATION

REVENUE—	£	s.	d.
By property-tax on private forest-areas, total area 5,000,000 acres, value £5 per acre ( <i>vide</i> page 3)=total value £25,000,000=property-tax	104,166	13	4
By property-tax on cut timber, round and sawn, total quantity 400,000,000 superficial feet, value 10s. per 100 feet, total value £2,000,000 = property-tax	8,333	6	8
By annual sales of timber on Crown lands	53,000	0	0
Total	£165,500	0	0

A. LECOY

Wellington, June, 1881.

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