



BRITISH GUIANA

ANNUAL REPORT
OF THE
FOREST DEPARTMENT
FOR THE YEAR
1960.

Printed by the Authority of His Excellency the Governor.

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FOREWORD

It is one of my most pleasant duties as Minister of Natural Resources to write a foreward for the 1960 Annual Report of the Forest Department.

Like most Annual Reports, the Conservator has tried to place, on permanent record, our aims, aspirations, and achievements for the year under review; and one of the most heartening improvements has been the increased production and use of timbers other than Greenheart and Crabwood.

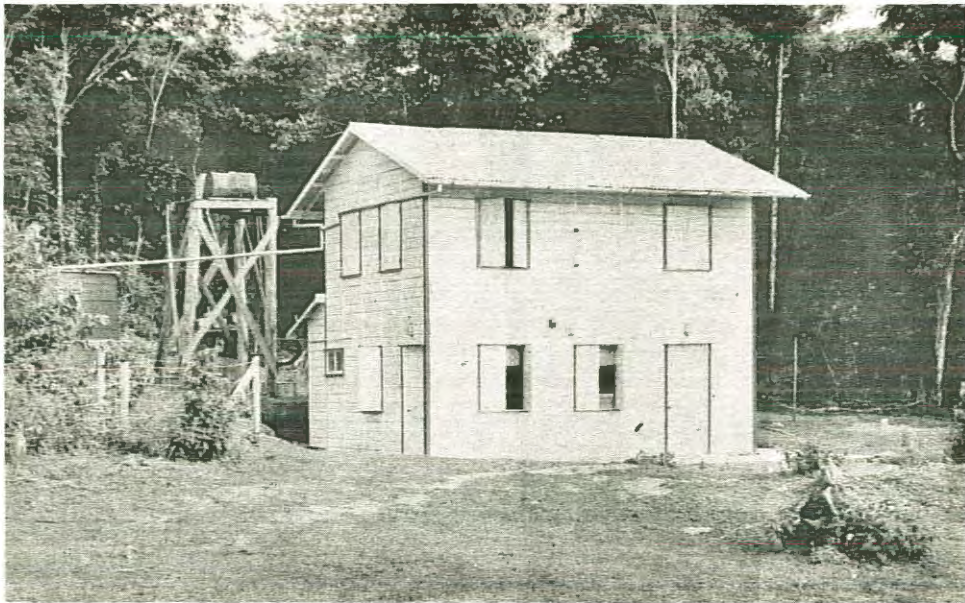
The immediate problems include the establishment of markets for our multifarious forests which cover over 80% of the country and the means of providing access to these forests so that the timber growing thereon may be extracted economically. If we hope to sell our timbers overseas we will have to establish and maintain locally a high standard of manufacture.

It is only when we develop and utilise the forests for the benefit of the community that we will be in a position to improve, regenerate, and conserve the existing forests for future generations. In the connection, an application has already been made to the United Nations Special Fund for assistance in carrying out a complete appraisal of our forest resources. This survey will assess the nature and extent of the forest resources as well as their uses and economic possibilities.

I hope to see Guianese of limited means organising themselves into cooperatives to enter the field of timber extraction, and the manufacture of high grade material. The Government is pledged to give such ventures every assistance possible.

I should like to take this opportunity of expressing my appreciation and thanks to all members of the Forest Department's staff for the work done during the past year. I have no doubt that they will continue to do their best, as the Government expects of them, in the future.

BRINDLEY BENN
Minister of Natural Resources
29.9.61



Prefabricated house erected at Bartica.
See paragraph 42 of this report.

1919



Pinus caribaea plantation at 5 Miles
Bartica Potaro Road — planted 1954.
See paragraph 49 of this report.

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GENERAL REVIEW

The most noteworthy features of the year are listed hereunder. Figures in brackets refer to the relevant paragraphs in the Report.

- (i) The Forest Department assumed full responsibility for the collecting and accounting for all revenue from Crown Forests (9).
- (ii) Logs from larger leases were measured at lease landing and not at market as was done in the past. This represents some progress in our aim i.e. measurement at stump (13).
- (iii) A survey of the Tapakuma catchment area (24).
- (iv) An application to the United Nations Special Fund for assistance in the appraisal of British Guiana's forest resources (26).
- (v) The erection of the new utilization Research Workshop at Kingston was completed and machinery installed (36).
- (vi) The provision of office facilities for the Divisional Staff in New Amsterdam, Berbice (37).
- (vii) The erection of a prefabricated house by the Forest Department at Bartica (40).
- (viii) The treatment of 477 acres of forest in the Moraballi (47).
- (ix) The planting of 50 acres of *Pinus caribaea* along the Bartica Potaro Road (49).
- (x) The manufacture of particle board from mixed whitewoods (Betabord) instead of Wallaba (67).
- (xi) The introduction of prefabricated houses to the West Indian Market (68).
- (xii) The production and use of timber species other than Greenheart and Crabwood (76).
- (xiii) The assumption of duty of an Assistant Conservator of Forests on completion of a scholarship (114).
- (xiv) The promotion of Messrs. L. E. Dow and G. P. A. Forbes as Conservator of Forests and Deputy Conservator of Forests respectively (115, 116).
- (xv) The establishment of a minimum wage of \$3.04 per day for unskilled Labour (118).
- (xvi) The interest shown by His Excellency the Governor and the Minister of Trade and Industry during their visits to the Department (121).

Note : Figures given in brackets in the text following hereafter are the corresponding statistics for the previous year, (1959).

FOREST POLICY AND LEGISLATION**Forest Policy**

2. The forest policy of British Guiana is —
 - (i) To develop the forest resources of the Colony as part of an integrated land use policy for the conservation and development of all natural resources.
 - (ii) To manage the forests on the basis of sustained yield.
 - (iii) To increase production from the forests, subject to (ii) above, with a view to —

- (a) filling the Colony's requirements of domestic products;
- (b) developing secondary processing industries within the Colony;
- (c) exporting a maximum of forest products.
- (iv) To ensure a reasonable return to the community on the exploitation of the forest crop.
- (v) To develop markets for species now considered to be unmerchantable.
- (vi) To provide access to forest areas.

Legislation

3. There were no changes or additions to the present forest legislation during 1960. The proposed revision of the Forests Regulations were discussed with the legal advisers and certain further changes were made. By year-end, however, it became evident that, in the light of the proposed amendment of the Crown Lands (Amerindian) Regulations, there would be need for further thought about the proposed amendments of the Forest Regulations. At year-end the law officers were also in the process of drawing up regulations to prescribe the procedure relating to the transfers of titles granted under the Forests Ordinance. This was separate and distinct from the revision of the main body of the Forests Regulations.

4. An amendment of the Regulations made under the River Navigation Ordinance provided for the proper lighting at nights of timber rafts in the lower reaches of certain rivers — viz: the Barima, Kaituma and Aruka — all situated in the North-West Division.

THE FOREST ESTATE

5. There was no change in the constitution or management of the Crown Forests as originally proclaimed by the Forests Ordinance of 1953, and these forests continue under the charge of the Forest Department. They cover, in a single block, an area of some 29,000 square miles, and within them are found all of the major and most of the smaller logging leases and operations.

6. Outside of the Crown Forests — to the north-east and south — lie the Crown Lands which contain, approximately, a further 41,000 square miles of forest. The region to the south of the Crown Forests is presently inaccessible to logging and will remain so for many years to come. In the north-east, however, (i.e. between the lower courses of the Essequibo and Corentyne Rivers) there are logging operations within the Crown Lands, but these produce less than 3% of the total output. These areas are 'salvage' forests, generally of a poor type — either naturally so, or reduced to this state by repeated creaming and abuse over the last half century. It is of interest to note, however, that within this portion of the Crown Lands are to be found many areas of possible use for the large-scale introduction of fast-growing exotic species. But such operations would require not only finance, but also careful formation of properly demarcated and protected forest reserves — as distinct from the administrative Crown Forests.

7. As the extent etc. of the forests are thus simply described, Tables I and II have been omitted from this report.

ADMINISTRATION

8. The Forest Department remained in the portfolio of the Minister of Trade and Industry.

9. As from the 1st January, 1960, the Forest Department assumed full responsibility for collecting and accounting for all revenue from Crown Forests. Previously, though Forest Department officers collected revenue in the field and bore the responsibility at divisional level, the final accounting was in the charge of the Commissioner of Lands and Mines. This control was, of course, a hang-over from the days (pre-1954) when the Commissioner of Lands and Mines had the entire administrative control of the forests and the Forest Department had, in effect, only advisory powers coupled with the liberty to carry out restricted research.

10. Together with the authority and responsibility for collecting and accounting for revenue it was natural that the Forest Department should accept the task of keeping statistics of production as well as that of supplying field-staff to assist the Lands and Mines Department in the administration of the forests which lie in the Crown Lands (outside the Crown Forests). There has been excellent co-operation between the two departments and the change-over went through as smoothly as could be desired.

11. In general, the new arrangements are sufficiently de-centralised to keep even the most energetic Divisional Officer fully occupied if not entirely happy, but, at the same time, enough control is maintained at head office to satisfy the demands of both the Treasury and the Audit Departments.

12. The most worrying feature of the administration of the department is that the senior professionally trained staff is now at its lowest ebb in the last ten years—from the view point of experience as well as numbers (see paragraph 109). The staff is now all-Guianese and it remains for the future to show whether patriotic zeal can make up for experience.

13. A further step towards real control in the forest was taken by measuring the production of the majority of the big timber operators when the logs are brought out to the rivers—and not when shipped to Georgetown as formerly obtained.

14. The staff at Bartica, serving the needs of both the Essequibo Division and the Silvicultural Division was strengthened by the addition of a second Forest Inspector.

MANAGEMENT AND SURVEY

Management

15. The distribution of Crown Forest wood-cutting leases in force at the end of 1960 was as follows:

Acreage		North West Division	Essequibo Division	Demerara Division	Berbice Division	Total
Under	500	—	9	—	1	10
501 —	3,000	1	29	1	11	42
3,001 —	10,000	1	9	3	1	14
10,001 —	50,000	3	2	6	9	20
Over	50,000	2	5	—	1	8
All —	number	7	54	10	23	94
—	acreage	294,600	1,863,844	163,000	302,930	2,624,374

16. There were twenty-seven leases (166,526 acres) less than at the end of 1959. Forty leases were surrendered, cancelled or expired and not renewed. Thirteen new leases were issued, and seventeen which had expired during 1960 were re-surveyed and re-issued.

17. It is becoming more and more common for small lessees to surrender their leases, as many of them are finding their holdings unprofitable to work because of increasing hauling distances. These men do not necessarily leave the business at once but join the host of others who work on restricted permissions in salvage areas. Such permissions are granted for a specified quantity of forest produce to be cut and collected from a carefully defined locality within a stated time. The quantity of produce allowed in a single permission usually varies from five to twenty-five trees or the equivalent thereof in cordwood. Naturally, these permissions do not carry the obligation of annual minimum royalty—like leases.

18. During 1960, a total of 1696 such permissions were issued—an increase of 299 above the 1959 figures. It is obvious that the time has come for a careful re-assessment of the policy and effects of the issue of these permissions, for though they are not issued over areas of virgin forest, they are granted in forest which has already been creamed—namely for Greenheart—and, therefore, the overall effect is that they encourage a second creaming of the forest for the other worthwhile species. The difficulty to be overcome is mainly due to the lack of staff and, therefore, of adequate information about the forests. Without these, it is impossible to plan and control felling over the vast areas which are concerned.

19. It is for this very reason that no formal Working Plans have been drawn up, and Standard Form III has been excluded from this Report.

Stockmapping

20. No forest type maps were prepared (from aerial photographs) during 1960, a retrograde step due to the departure of the officer at the end of his contract. During 1960, this work was removed from the Development Programme and transferred to the Recurrent Estimates, but before this change could be finalized, the officer was forced to take a job elsewhere. It was a pity but, at year-end arrangements were being made to secure the services of another officer with training and experience in this type of work.

21. Messrs. Fairey Air Surveys supplied 1149 photographs from the 1959 air coverage of 5,400 square miles but, unfortunately, there were many gaps in areas of greatest interest to the Department. These gaps were due to heavy cloud-cover—a regular feature of the western section of the country, which, it is understood again greatly hampered photography during 1960, when a further 5,680 square miles were photographed at two heights, 5,000 feet and 15,000 feet.

Surveys and Enumerations

22. Two unusual and interesting surveys were completed during 1960.

23. The first, at the request of the Department of Drainage and Irrigation, was made to ascertain "the nett value of the timber on the property" (105.23 acres) which was required for public (water-storage) purposes. A 100% valuation was

made and the maximum nett value of all possible economic species determined at \$5,560. The forest was mainly secondary.

24. The other survey was done at the request of the Department of Land Settlement in the catchment area of the Tapakuma (Irrigation) Project. The objects were to determine whether felling of the forests would adversely affect run-off and lead to soil erosion; also whether the forests were sufficiently valuable for a Working Plan to be prepared for the area—if exploitation were to be allowed.

25. The area is predominantly covered by degraded forest, scrub or dry savanna and it was recommended that the continuation of exploitation (mainly for fire-wood) would have little adverse effect or run-off or erosion. Also, any attempt at natural regeneration of the area would be uneconomic but the land is apparently suitable for the establishment of plantations of Caribbean Pine (*P. caribaea*)—an undertaking which would help to provide work for the settlers and which has possibilities for the introduction of 'taungya' plantations. These recommendations were accepted and it is hoped to make a start in 1962-63.

Applications to United Nations—for the appraisal of British Guiana's forest resources.

26. The Government of British Guiana has made two applications to the United Nations for help in its forest survey programme. The major application was to the Special Fund for assistance in the re-appraisal of areas that have been creamed for Greenheart as well as in the valuation of new areas. It also calls for an economic assessment of possible forms of utilization and for advice on the location and establishment of new forest industries.

27. The second application—to the Technical Assistance Board—was predominantly designed to link aerial photography and ground surveying and to work out a technique for surveys in the future—based upon proper mapping and stratification of the forest coupled with random sampling. In short it is preparatory to the major application. The second application also includes other points—e.g. the training of local staff in these techniques.

COMMUNICATIONS AND BUILDINGS

Roads.

28. Standard Form IV is omitted from this report as no roads or other internal forest communications are constructed or maintained by the department. A road-trace, nearly three miles long was aligned around the Looking Glass Falls on the Mazaruni River. This route can accommodate a road, skirting this range of falls which is impassable to logging, and opening up a well-wooded area on the Upper Mazaruni River.

Road Vehicles.

29. No new road vehicles were purchased during the year, but one Land Rover in service since 1954 was given a complete overhaul in the workshop. Though not capable of prolonged heavy work in the forest, this vehicle is yet an excellent 'stand by' machine. One other Land Rover was taken out of service to await a Board of Survey prior to being condemned.

Waterways

30. Once again, a severe dry season in the second quarter of the year affected the upper reaches of the rivers in the North West Division and restricted log production.

31. An eight-mile stretch of the upper Pomeroy River (from Arunamai Creek) was cleared of fallen trees at a total labour cost of \$428. The department supplied some of the equipment used (cross-cut saw and morris-block). The object was to open up an area of forest, hitherto inaccessible, for exploitation by residents of the district—mostly Amerindians.

Boats

32. Three boats were given major overhauls during the year and a fourth was nearly completed at year end by Headquarters Workshop staff. In addition one new 'falls boat' and one new bateau were built during the year. As usual, minor repairs, cleaning and painting were carried out by Divisional staff.

33. At year-end there were thirty-three boats listed in our register, as follows:

2	—	32'	Cabin Cruisers
3	—	32'	Bateau Cruisers
2	—	30'	Bateau Tentboats
4	—	20'	Ranger Launches
11	—	22'	Patrol Bateaux
4	—	18'	Patrol Bateaux
3	—	17'	Ballahoos
2	—	14'	Bateau Tenders
2	—	20'	Corials

Engines

34. Boat engine overhauls at Headquarters Workshop totalled 26 for the year—20 being major overhauls and 6 being minor. A major overhaul entails complete stripping and re-building of the engine. In addition the engine of the Land Rover—to which reference was made previously—was given a major overhaul, and a partial overhaul given to the Morris truck. Two new engines were installed in boats.

Request for Transport

35. Wherever possible, assistance was given to other Government departments in connection with river transport. In the majority of cases, it meant lending the department's boats and crews.

Buildings

36. The new Utilization Workshop in Georgetown was completed—save for interior fittings. The new machines were installed, *viz* :—

- (1) one 24" Bursgreen Band-saw
- (2) one Bursgreen UO/2 18" x 5" Planer and Thicknesser
- (3) one Wadkin automatic Band-saw filer and setter
- (4) one Wadkin brazing machine

37. The Public Works Department completed the renovation of the lower floor of the building formerly used by the Department of Geological Surveys in New Amsterdam, and the Divisional office, Berbice, was moved into this building from the old District Administration Offices. The Forest Inspector, Berbice was also provided Quarters formerly occupied by the Geological Survey Department.

38. At Bartica, Essequibo, the two quarters occupied by Assistant Conservators of Forests were renovated during the year by the Public Works Department, and the concrete bungalow handed over by the Interior Department, was occupied by the second Forest Inspector.

39. On the Upper Demerara River, the Forest Ranger's house at Christianburg had to be removed to another site to permit the construction of a "Turning Basin" for ships berthing at the Demerara Bauxite Company's Plant at Mackenzie.

40. The highlights of the building activity for the year was the erection of our own pre-fabricated house at Bartica. The house had been designed by the Utilization Officer and the units built by him on a special 'jig' for which Government has allowed him to hold the patent.

41. The house was, of course, the prototype. Its dimensions are 21' x 15', two storeyed. The approximate costs are as follows:—

(1) All units—ex works complete with fastenings and roofing	— 2,500
(2) Transport to Bartica	50
(3) Cost of erection	400
(4) Costs of plumbing 3,000 gallon water and electrical wiring	1,000
	<hr/>
	\$3,950
	<hr/>

42. The house can be erected by semi-skilled labour. This one was actually erected in 26½ days under the direction of one carpenter from the Utilization Workshop who had three unskilled workmen assisting. We are confident that future houses can be erected in less time. It is planned to build several such houses in the various out-stations. At year-end negotiations were being made with the Ministry for the Forest Department to erect several such houses, of a modified design, for Tourist accommodation in the interior. A photograph of the prefabricated house erected at Bartica is at the front of this report.

PROTECTION

43. A total of 206 (139) offences under the Forests Ordinance were dealt with during 1960 and details are given in Standard Form V. The illicit felling of trees accounted for 98 (86) of these cases while offences with regard to removal permits totalled 58 (45). One offender was taken to court; all others were dealt with by "compounding" or the sale of produce — as permitted by the Forests Ordinance.

44. As regards the protection of revenue, 8 (1) offenders were taken to court for the non-payment of minimum royalty and judgment was obtained in the total sum of \$487.87 (\$120). Twelve (11) offenders were taken to court for the non-payment of royalty on forest produce that had been cut and removed, and judgment amounting to a total of \$315.13 (\$447.28) was secured.

45. It was, therefore, a very busy year for the staff of the department in their efforts to protect both the forests and the revenue. The organization of the department, carefully planned to this purpose over the last five years and based upon the powers granted by the Forests Ordinance of 1953, is certainly now showing valuable results. It must be stressed, however, that, with the increasing shortage of accessible forest containing the top commercial species, it is very obvious that there is likely to be a continued rise in the number of forest offences. Efforts will need to be made to prevent as well as to detect such abuses.

46. A very determined attempt was made by a group of small loggers to force the department to allow them to work in the Moraballi Forest Reserve. This is merely an 'ad hoc' reserve, without any definite legal status or protection. It was, fortunately, forestalled but it does show that there is already a vital need for proper legislation on this score if the department is to perform its true functions with any real purpose or continuity.

SILVICULTURE

Natural Regeneration

47. Work was confined to the Moraballi Reserve, where a second treatment was given to 400 of the 477 acres first treated during the period September, 1957—May, 1958. The object of the treatment during 1960 was to free existing economic 'regenerants' from the competition of so-called 'weed-species', without letting heavy light into the stands. The canopy was, therefore, left untouched except where it was obvious that the initial opening had been too light and regenerating economic species (mostly Greenheart) were consequently being suppressed. Where this occurred the canopy was opened by poisoning the large trees with sodium arsenite.

48. Labour requirements averaged 3.5 man-days per acre treated—as compared to 6 man-days per acre for the first treatment. As far as can be foreseen, these areas will require at least two further treatments—probably another 6 man-days per acre. Even though profuse Greenheart (*Ocotea rodiaei*) regeneration has been obtained, the final cost of regenerating the forests in this manner is thus very likely to be exceedingly costly. A careful assessment of the results has shown that many marketable (if not presently commercial) species were being sacrificed — at a cost. It appeared that the forests which had been heavily worked for Greenheart could be more easily and cheaply regenerated to admit possibly two dozen species of known commercial value—including Greenheart—and investigations were, therefore, being further pursued at year-end. It was also planned to obtain the advice and help of Mr. H. C. Dawkins of the Uganda Forest Service when he visited the Caribbean early in 1961.

Artificial Regeneration.

49. During two planting seasons in the course of the year, 50 acres of *Pinus caribaea* were planted at 5 Miles, Bartica-Potaro Road. This brought the total area under pine to 127 acres, with an age range of 0—6 years. Growth continued to be most promising, and a photograph of the first set of Pines — P54 — is given at the front of this report.

50. Attacks by Acoushi ants (*Atta* spp.) on *P. caribaea* became very widespread, and it was apparent that attempts at control by pouring liquid poison into

the nests were of little value. This was due not only to the design of the nests but also to the porosity of the soil. However, a "Swing-fog" machine (of German make) which fogs a mixture of aldrin and dieselene, and allows penetration of the insecticide to all parts of the nest, was found to be exceedingly effective as well as easy to use. The nozzle of the machine is inserted into a large hole and the men delight in running around and plugging holes from which fog is seen to be issuing—frequently 30—40 feet away from the machine.

51. Standard Form VI has been omitted from this report as being inappropriate to report silvicultural progress to date.

INVESTIGATIONS AND RESEARCH

Silvicultural

52. The Silvicultural Division supplied technical advice, transplants of *P. caribaea*, seed and inoculated soil to the Agronomist, Rupununi District. The object is to ascertain whether pine could be established on the Rupununi Savannas. The trails seem to be proceeding satisfactorily.

53. Towards year-end, attempts were made to germinate the seed of Karohoro (*Didymopanax morototoni*) after pre-germination treatment. Previous trials without pre-treatment had failed. Various treatments were given (boiling, acid, alkali, scarifying) and results are being awaited.

54. Small scale trials in the North-West Division were continued with Crabwood (*Carapa guianensis*) and Red Cedar (*Cedrela odorata*). The Red Cedar, previously reported to have been attacked by short-borer are in check.

Increment Studies

55. On the Waini River, measurements were made in the Dalli (*Virola surinamensis*) plot twice during the year. There was no need for cleaning or poisoning during the year, and the trees are growing well. Since Dalli develops flanges later in life, the precaution has been taken to start recording a second set of girth measurements at 10 feet above ground.

Ecological and Botanical

56. No ecological collections were made by the department during the year but assistance was given two parties which did collect, namely:—

(a) Dr. Bassett Maguire and Dr. Tillet of the New York Botanical Gardens who worked in the Kamarang District between June and October.

(b) Mr. Adrian Thompson, a private collector, who worked in the Ayan-ganna—Roraima District.

57. The department also assisted the Cambridge Expedition, in identification of species, during the early part of its work in the Moraballi Creek.

58. The herbarium was maintained in good condition, specimens received regular cleaning and poisoning, with remounting where necessary.

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Enquiries for Material

59. Plant material was collected and supplied to various institutions and firms, as follows:—

- (1) *Ocotea rodiaei* (bark) — Tropical Products Institute, London, and also to Perrick & Co., U.S.A.
- (2) *Ocotea rodiaei* (seeds) — Forest Department, Eastern Nigeria.
- (3) Wood specimens *Eperua falcata* — Mr. M. Khan (for pulp tests)
- (4) Seeds of *Eperua spp.* and *Ocotea rodiaei* for trials in St. Vincent, B.W.I.
- (5) *Strychnos* (roots and bark) Tropical products Institute.

Weather Records

60. Rainfall data were collected from 22 stations and have been tabulated in Appendix B.

UTILIZATION

Sawmilling

61. There are plans afoot for the installation of at least two — possibly three band-saws. This is a step forward since, up to the present time, the only heavy duty band-saws in operation in British Guiana are those at the Houston Mill of British Guiana Timbers Limited (Colonial Development Corporation).

62. The new gang-mill at Mahaica was completed and went into production. It is working excellently and the standard of milling is high. The Utilization Officer is to be congratulated for another excellent job of work—done in designing and setting up this mill.

63. The general standard of sawing continues to be low and it is apparent that there is need for a revision of our policy towards sawmills and sawmilling. The present policy restricts the building of new mills in the hope of encouraging the old mills to improve the quality of output by installing new machines etc. It is proving, however, to have the opposite effect and is virtually giving a monopoly to low-quality mills. There are several interested parties who are willing to set up completely new mills to the specification of the Forest Department, and, therefore, at the risk of having too many mills, it is reasonable to throw the industry open—provided that only first class mills are erected. At most, this overcrowding in the industry will be only for a few years—until the poorer quality mills are put out of existence for failing to be able to compete in quality and production.

Utilization of Local Timber

64. The main uses of various local timbers are shown in Appendix C.

Timber Samples

65. There was during 1960 an unusually high number of requests both local and foreign for hand samples of various local timbers. These requests came from teaching and research institutions as well as trade sources. All were duly met.

Particle Board

66. The company which had engaged in the manufacture of particle-board (under the trade name 'Plibord') suffered a trading loss of \$149,152 during its

first year. Besides normal teething troubles there was great difficulty over the supply of power, as the local power station suffered several break-downs and load-shedding. In addition, the Plibord (made from Wallaba—*Eperua spp.*) encountered stiff sales-resistance because of its great weight (at 70 lb. a cubic foot), dark colour and peculiar odour.

67. The firm has since put a different type of particle board on the market (registered as 'Betabord'). This article is manufactured from a mixture of several lighter hardwoods (colour and weight) and is a definite improvement on the former product. The company is optimistic of a better reception from consumers both locally and abroad. It remains to be seen, however, if the article can be priced at a competitive rate. The difficulties of securing timber supplies are quite serious in that all the material has to be moved great distances (fortunately, mostly on water).

Prefabricated Houses

68. The pre-fabricated houses which were previously marketed by two local firms have apparently aroused a great deal of interest—especially in the West Indian market. Sales were reported to be satisfactory and one firm has "tooled up" a complete joinery shop of high quality to take charge of this sector of its production.

Wood Pulp

69. The Columbian Corporation, of the United States of America, which proposes to establish a wood-pulp plant for the manufacture of alpha-cellulose, made a brisk start to their operations at the beginning of 1960. About 120 acres of forest were cleared at Tiger Creek, Left Bank Essequibo River, the proposed site of the plant, and several workers' houses and ancillary buildings erected. Surveys for the first section of the road and railway—as far as the Cuyuni River—were completed and certain other survey work was begun in connection with the hydro-electric plant which is to be established on the Cuyuni River.

70. Their operations did not, however, maintain this pace and, after a period of slowing down, were completely halted by mid-1960. It is understood that this cessation was due to certain temporary financial problems connected with the increase in the proposed size of plant from 200 to 500 tons of pulp per day and, necessarily, of the cost from \$16 million (U.S.) to \$30 million (U.S.). It is further understood that work is due to re-start momentarily.

PRODUCTION AND TRADE

71. Details of production from Government forests are given in Appendix C, which also shows the common uses of these timbers. Volumes are expressed in cubic feet (hoppus measure) in this appendix and in the sections which follow.

72. The total production of timber from Government forests in 1960 was 5,362,000 (5,247,600) cubic feet of which 3,359,200 (3,486,000) cubic feet was Greenheart.

73. The way in which log production for all timbers with production 20,000 cubic feet hoppus and over was distributed between the four territorial divisions is indicated by the following figures:-

(i) <i>Essequibo Division</i>	<i>Cubic Feet</i>
Greenheart	2,790,700
Mora	211,000
Purpleheart	93,900
Crabwood	74,800
Kabukalli	58,700
Karahoro	37,400
Kereti	34,600
Duka	28,000
Tauroniro	24,400
Simarupa	20,800
Other Species	148,700
	<u>3,523,000</u>
(ii) <i>Demerara Division</i>	
Greenheart	356,800
Wallaba	167,500
Mora	47,100
Kereti	25,600
Other Species	62,400
	<u>659,400</u>
(iii) <i>Berbice Division</i>	
Greenheart	211,700
Crabwood	162,400
Wallaba	86,600
Mora	75,000
Kereti	72,800
Simarupa	20,600
Other Species	59,000
	<u>688,100</u>
(iv) <i>North-West Division</i>	
Crabwood	187,900
Dalli	137,900
Kirikaua	53,000
Kurokai	41,500
Other Species	71,200
	<u>491,500</u>
GRAND TOTAL	5,362,000 cu. ft. Hoppus

Note : These figures include timber removed as logs, roundwood, and split-wood, but do not include logs sawn in the forest.

74. In the Essequibo Division—the major logging area—the production of Greenheart fell to 4% below the 1959 figure. This decrease is due to a normal trade fluctuation. It is of interest to note, however, that with constantly increasing hauling distances, the present leases are hardly capable of expanded pro-

duction in the future unless an increase in overseas demand and price should occur. This is hardly likely. There is a possibility, however, that the production from this division will expand because of a new lease which is being opened above the falls on the Essequibo River. It is a daring venture by a saw-miller from Demerara, who proposes to extract the produce by river (in a clear stretch above the falls) and road to the Demerara River at Christianburg; thence down the Demerara to Georgetown.

75. The production of Purpleheart (*Peltogyne spp.*) increased to a very sizable figure because of the attempts by one big lessee to put this species on the overseas market. The production of Mora increased by 53% only because of contracts placed in this division by the Transport and Harbours Department for railway sleepers. The total production of all species was 3,523,000 (3,527,000) cubic feet (Hoppus).

76. It is heartening to note the tendency for greater production of species other than Greenheart. This can be attributed to a combination of two causes, namely, the Forest Department's efforts to popularize these species and the increasing distances over which Greenheart has to be logged.

77. In the Demerara Division there was no remarkable change to report. However, the continued decrease of Greenheart production is worthy of being recorded. This is due to the combination of increasing hauling distances and to drought affecting the Upper Demerara River.

78. In the Berbice Division, there has been an overall increase of 37% above the 1959 figure of production—688,100 as compared to 504,100. This is due to a general increase in all species—especially Crabwood—and this has been brought about by a slight improvement in floating conditions as well as a resurgence in the building industry locally.

79. In the North West Division there has been a general decrease of 9% in the total production when compared to that of 1959. Crabwood production decreased because of the difficulty of floating from the upper reaches of the rivers where this species is presently logged. This was due to unfavourable weather conditions (drought). The production of Mora has almost ceased because the African Manganese Company, which operates in this division, has completed the building of its railway. The increase in the production of Kirikaua and Kurokai occurred entirely because of increased purchases of these species by the Central Timber Manufacturing Plant of the Forest Department. Most of the Dalli produced is for export to Surinam.

80. The production of timber from privately owned forests was recorded as 380,000 (430,000) cubic feet for the year. Not only are private estates running short of marketable timber, but the tighter control measures instituted a few years back are beginning to produce tangible results.

81. Standard Form IX gives production data relating to local primary forest industries which are taken for this purpose to be all sawmills, the particle-board factory and the match-factory.

Fuel

82. As more and more steam units throughout the country are replaced by diesel engines, the downward trend of firewood production continues. In 1960 total production was 1,352,000 (1,777,000) cubic feet.

83. Charcoal production increased to 14,528,000 lbs. in 1960 (12,037,000)—again produced mostly for the export market.

Equivalent Out-turn

84. Standard Form VII shows the "equivalent volume of round timber" in true measure under bark for the following categories: timber, roundwood, split-wood, wood for fuel, wood for charcoal. These figures have been obtained by applying suitable factors (given in a footnote to Standard Form VII) to the volumes recorded for royalty purposes and seek to represent the actual volume of growing timber which went into their production.

Minor Forest Products

85. Balata: Total balata collection (for export) continues to show improvement—being 497,372 lbs. as compared with that for 1959 (455,053 lbs.).

86. Mangrove bark: Here again a substantial improvement is to be noted; 496,000 lbs. were collected (425,900). This produce is used in the local tanneries and obtained from both banks of the Waini River, North-West Division.

87. The inclusion here of statistics relating to these two items of minor forest produce renders the use of Standard Form VIII unnecessary and it has accordingly been omitted.

Imports

88. The gross value of imports of timber and timber products amounted to \$3,532,534 (\$3,387,089), the main items being paper and paper products \$2,293,540 (\$2,089,319); sawn coniferous timber \$285,788 (\$199,979); boxes, shooks and cooperage products \$324,680 (\$580,860).

89. Logs to a total volume of 447,509 (609,000) cubic feet were imported. Surinam supplied the greater portion for conversion in the sawmills on the Corentyne River; less than 1,000 cubic feet came from Venezuela for use in the mills at Morawhanna. About 78% of the volume was in the one species, Crabwood. The remainder was mainly Red Cedar, Mora, Simarupa.

90. Details of imports are given in Standard Form X.

Exports

91. The total value of exports of forest produce was \$4,413,779 (\$4,314,116). The main items were sawn timber (mostly Greenheart) \$2,043,289 (\$1,954,286); poles, piling and posts \$918,637 (\$621,559); gums, resins and latex \$530,551 (\$596,328); hewn timber \$450,004 (\$679,099). A detailed statement of exports is given in Standard Form X.

Forest Department Timber Yard

92. The year 1960 was in most respects a time of trial and testing for the Timber Yard. In the first place, it was marked by a drop-off of demand for lumber, the market that was left being very selective. Secondly, it became apparent that the Plant and workers were sorely in need of re-organization. It was discovered, to our consternation, that there existed several very likely loopholes through which the very substance of the Plant could easily have been slipping. An analysis of the previous reports for 1958 and 1959 confirmed our views. The re-organization was put underway.

93. Sales to private individuals locally fell very sharply, due to a general decrease in the building trade. Government departments also purchased less than in 1959, but it was most gratifying to have obtained at year-end, as a result of the remarks in last year's report, a clear-cut directive from Government that all Government departments must purchase their supplies of lumber from the Forest Department's Yard or have our certificate to enable outside purchase.

94. Exports increased by some 20% above the 1959 figure and show every sign of continuing to increase.

95. Purchases of rough, green timber which were made in accordance with demand on the sales sector, amounted only to 746,374 F.B.M.—a figure approximately 60% of purchases in 1959 (1,307,305).

96. Because of the evidence which there was found of losses in the past it became very necessary to have a complete physical stock-taking and to regrade and measure every piece of lumber in all broken or uncontrolled stacks. Unfortunately, due to several interruptions this task has not been completed in time for the writing of this report and, therefore, the 'book figures' of stock which have been used in Appendix E should be viewed with caution. There will be an addendum to the Report for 1961 to show the true position at 1st January, 1960.

REVENUE AND EXPENDITURE

97. Standard Forms XI and XII give details of revenue and expenditure. Standard Form XI(a) gives details of expenditure under the Development Scheme, but this expenditure was not incurred during 1960, and merely represents book-entries for debts due prior to this year.

Revenue

98. The total revenue derived from the forest amounted to \$436,815 (\$429,766). Of this, royalty on forest produce accounted for \$422,574 (\$421,800) and, though small, it is worth mentioning that thinnings—215 trees—of the Caribbean pine plantation at Bartica were sold as Christmas trees in Georgetown for \$229. The demand was actually higher than the supply.

99. Proceeds from the sale of seasoned timber from the departmentally operated timber yard totalled \$159,130 (\$239,796).

Expenditure

100. Expenditure from Colony funds (annually recurrent estimates) totalled \$353,505 (\$281,816). The increase, when compared with 1959, is due

largely to the abolition of the Development Schemes and the absorption of this expenditure on the recurrent estimates. In addition to the normal annual increases due to personal emoluments, the transfer of funds from Development to Annually recurrent expenditure resulted in increases as follows:—

(a) Personal Emoluments	—	\$ 21,000
(b) Silviculture	—	\$ 22,000
(c) Forest Surveys	—	\$ 2,000

The extra expenditure under Travelling Allowances (\$4,000 approximately) was occasioned by an increase in the rates, and it must be recorded that, withal, fewer inspections had perforce to be done.

101. The expenditure incurred by the Central Timber Manufacturing Plant in the purchase of unseasoned timber, labour and operating expenses amounted to \$214,800 (\$332,666). This included an increase in the wages of daily paid workers.

Net Financial Position

102. Despite the increases in expenditure there was a surplus of \$83,310 (\$147,950) of normal forest revenue over normal forest expenditure for the year.

103. It is indeed unfortunate that at the time of writing, it has not yet been possible to ascertain the exact total quantity of utilizable stock in the timber yard. Because of this fact, it is impossible to give any true account of trading losses in 1960. This, as promised earlier, will be brought up-to-date in the 1961 Report.

EDUCATION

Training

104. Mr. K. F. S. King (Assistant Conservator of Forests) made an instructional tour of Silvicultural centres in Trinidad during August 1960. He observed the methods used by the Trinidad Forest Department for the establishment of *Pinus caribaea* plantations and for the natural regeneration of indigenous species.

105. Mr. C. A. John (Assistant Conservator of Forests) left for the United Kingdom to attend the one-year Forest Officers' Post Graduate course at the Imperial Forestry Institute, Oxford, commencing October, 1960.

Publications

106. The Annual Report of the Forest Department for the year 1959 was received from the printers in November, 1960 and distributed.

Exhibitions.

107. The Forest Department did not actively participate in any exhibitions during the year.

Talks

108. The Conservator participated in a broadcast during December, 1960 entitled, "The use of Aerial Photography in Forestry". This was a presentation of the Government Information Services.

STAFF AND LABOUR

Staff

109. The disposition of staff at the end of the year was:

CHARGE	Senior Staff	Inter-mediate Staff	Sub-ordinate Staff	Clerical Staff
Headquarters	3	2	4	9
Timber Yard	1	1	—	1
Survey Branch	—	—	—	—
Silvicultural Division	—	—	4	—
Utilization Division	1	—	5	—
North West Division	1	—	10	—
Essequibo Division	1	2	34	2
Demerara Division	1	1	14	1
Berbice Division	—	1	22	2
Vacation leave (Overseas)	—	—	3	1
Vacation leave (Local)	—	—	4	1
Study leave (Overseas)	1	2	—	—
Vacant Posts	2	5	—	—
Total Staff	11	14	100	17

Full Establishment — 142

110. Mr. R. Smeathers, Conservator of Forests, proceeded on leave prior to transfer to Sarawak on the 29th July.

111. Mr. P. M. Nobbs, Assistant Conservator of Forests resigned his post in September.

112. Mr. R. J. Brewer, Mill Manager, proceed on leave on 1st May prior to termination of his 3-year contract.

113. Mr. G. A. Phillips, Utilization Officer, was absent on leave during the period 7th April to 17th October, 1960.

114. Mr. D. H. Peresram assumed duty on 26th July as Divisional Forest Officer, North West, after completing his forestry training under a Government scholarship at Bangor.

115. Mr. L. E. Dow, Deputy Conservator of Forests, was appointed Conservator on 8th November.

116. Mr. G. P. A. Forbes, Assistant Conservator of Forests, was appointed Deputy Conservator of Forests on 8th November.

117. Movements in subordinate staff were:—

New Appointments:

Messrs. T. Trim, V. Smith, L. Felix and R. Francis; Boathands
 Mr. J. A. Knights; Forest Guard
 Mr. N. A. Gajie. Assistant Stores Clerk
 Mr. L. Garnett; Grade II Engineer

Promotions:

Mr. E. Hamilton; from Grade I Engineer to Foreman Mechanic
 Messrs. A. C. Wong and V. J. Benn; from Grade II Engineer to **Grade I Engineer**
 Mr. C. O. Jackson; from Forest Guard to Forest Ranger
 Mr. J. E. Edwards; from Boathand to Grade II Engineer
 Mr. E. Shanks; from Boathand to Forest Guard

Resignations:

Mr. S. M. A. Williams; Forest Guard
 Mr. J. E. Naraine; Boathand
 Mr. N. H. D. Richardson; Forest Ranger

Retirement:

Mr. W. Grant; Foreman Mechanic
 Mr. A. Glen; Boatbuilder

Transfers to/from other Departments

Mr. F. B. Pedmour; Draughtsman, to Public Works Department
 Mr. J. Russell; Messenger, to Labour Department;
 Mr. F. W. Parris; Forest Ranger, to Department of Lands and Mines
 Mr. C. Benjamin; Grade I Engineer, to the Agriculture Department
 Mr. K. Philadelphia; Assistant Stores Clerk, to Education Department on promotion
 Mr. Lackraj; Messenger, assumed duty on 4th April on transfer from the Labour Department.

Labour

118. The timber yard employed a labour force of 50 and 6 clerical assistants at 31st December, 1960. The minimum wage was further increased to \$3.04 per day with effect from 29th November, 1960.

119. At the end of 1960 the purpleheart Co-operative Thrift Society had a cash balance of \$1,039 whilst loans amounted to \$4,816. The Society suffered a loss of \$655.56 due to theft, and members have agreed to contribute towards repayment of this loss.

120. Temporary gangs (mainly Amerindians) were recruited as required for silvicultural work and enumeration surveys.

MISCELLANEOUS**Visitors**

121. His Excellency the Governor and the Minister of Trade and Industry visited the Forest Department on 19th August and 5th December, 1960 respectively.

122. Mr. F. C. Ford Robertson, Director of the Commonwealth Forestry Bureau visited during 24th—30th July, 1960.

123. Dr. Briscoe of the Tropical Reserch centre, Puerto Rico, visited during 24th — 29th April

124. Doctors B. Maguire & Tillet of the New York Botanical Gardens made botanical expeditions into the (Karanang) Pakaraimas.

125. The Cambridge Expedition visited during July, 1960, and worked in the Moraballi Forest Reserve.

Trade Mission

126. The Mill Manager visited Trinidad during March 22nd — 24th so as to secure orders for the Central Timber Manufacturing Plant re the Hilton Hotel Project.

Acknowledgements

127. I cannot conclude this report without paying a tribute, and saying thanks, to my predecessors in office. As the first Guianese to hold the post, I am deeply conscious of the sterling work done, against severe handicaps, by these devoted men. I promise to do my utmost to serve in the tradition which has been handed down — well knowing that I have a solid foundation upon which to build. I would particularly like to pay tribute to the two Conservators who prepared me for this post — Messrs. W. A. Gordon and R. Smeathers.

128. Finally, I would take the opportunity to thank the staffs of the Forest Department and of the Ministry of Trade and Industry, who have given me their unstinted support at a very difficult period of my career. I would, however, like to point out that much remains to be done if the Forest Department is to fulfil its true destiny and that it is not my intention to accept any standards of efficiency other than the best possible. I regret that any staff who do not give of their best will find that my disapproval will be of increasing severity as time passes.

L. ERNEST DOW
Conservator of Forests

25th June, 1961

FORM V.

SUMMARY OF FOREST OFFENCES FOR THE YEAR ENDED 31ST DECEMBER, 1960.

Category of Offences	Cases reported and brought forward	Cases taken to court				Cases dealt with departmentally			Offenders Unknown		Proceeds from sale of forfeited property	Total No. of cases dealt with	Cases pending
		Fined		Cautioned and discharged	Acquitted	Compounded		Cancelled	Cases	Sale of produce			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
							\$ c.			\$ c.	\$ c.		
Illicit felling ..	120	—	—	—	—	91	1,468.75	6	1	26.00	—	98	22
Unlawful possession of forest produce	10	—	—	—	—	10	113.00	—	—	—	—	10	—
Removal permits incomplete or not produced ..	67	—	—	—	—	52	485.00	6	—	—	—	58	9
Felling undersized trees ..	21	—	—	1	—	20	382.00	—	—	—	—	21	—
Making false declaration on a permit	1	—	—	—	—	1	10.00	—	—	—	—	1	—
Removing and sawing detained logs	1	—	—	—	—	—	—	—	—	—	—	—	1
Failing to produce a permit within 24 hours after arrival at destination	19	—	—	—	—	17	215.00	1	—	—	—	18	1
Total ..	239	—	—	1*	—	191	2,673.75	13	1	26.00	—	206	33

FORM VII

**OUTTURN IN SOLID CUBIC FEET* OF TIMBER AND FUEL FOR THE
YEAR ENDED 31ST DECEMBER, 1960.**

Timber	Roundwood	Splitwood	Wood for Fuel	Wood for Charcoal	Total
6,565,615 (6,429,676)	164,679 (135,829)	56,827 (63,133)	1,690,000 (1,776,720)	1,751,203 (1,527,228)	10,228,324 (9,932,586)

NOTE :—

* The equivalent of round timber in true measure under bark.

Timber :— Logs and wood sawn in the forest, and transmission poles.

Roundwood :— Posts and Spars

Splitwood :— Shingles, paling and vat staves.

Figures in brackets are corresponding statistics for previous year, 1959.

CONVERSION FACTORS

The equivalent of round timber in true measure under bark is obtained from the various units in the following manner:

Category	Unit	Conversion Factor
1. Logs (including transmission poles)	.. cu.ft. Hoppus	× 5/4
2. Roundwood spars	.. lin. ft.	÷ 100
3. Paling Posts	.. lin. ft.	÷ 5
4. Shingles	.. pieces	÷ 50
5. Paling Staves	.. pieces	÷ 12
6. Vat Staves	.. lin. ft.	÷ 25
7. Sawn timber	.. ft. B.M.	÷ 6 x 5/4
8. Firewood	.. tons	× 40
9. Charcoal	.. tons	× 270

FORM IX

PRIMARY FOREST INDUSTRIES, 1960

Particulars of Industry	Quantity of Wood (home grown or imported) consumed in cu. ft. Hoppus.	No. of Persons Employed
Sawmills	(i) 5,619,968	(iii) 837
Match Factory	97,110	180
Particle board factory	52,992	51
TOTAL	5,770,070	1,068

NOTE :—

- (i) These figures are based on those supplied by the industry concerned.
(ii) Value of outturn ex factory is not available.
(iii) These figures are rough estimates only and are not based on a census.

FORM X

**IMPORTS AND EXPORTS OF TIMBER, WOOD PRODUCTS AND
MINOR FOREST PRODUCTS DURING THE YEAR ENDED 31ST
DECEMBER, 1960.**

Category	Gross Imports		Gross Exports (a)		Nett Imports or Exports *		Average annual nett Imports or Exports for quinquennium ended 31.12.60.		Percentage by value of gross imports from different sources or exports to different destinations during the year, 1960. 10% and over
	Q'ty.	Value	Q'ty.	Value	Q'ty.	Value	Q'ty.	Value	
1. Fuelwood	—	1	50,520	8,950	50,520*	8,949*	1,361,068*	252,153*	To W.I. 100 To U.K. 77; W.I. 23 To Surinam 88; W. Ger- many 10; From Surinam 100
2. Charcoal	5	97	1,358,343	248,061	1,358,338*	247,964*			
3. Logs (non-conifer) ..	447,509	82,139	252,242	95,445	195,267	13,306*			
4. Hewn Timber	377	25	274,935	450,004	274,558*	449,979*			
5. Poles, Piling & Posts (non-conifer)	44	30	755,289	918,637	755,245*	918,607*	1,768,880*	3,043,145*	To U.K. 66; Netherlands 29 To U.S.A. 48; W.I. 31; Panama 10 To W.I. 100 From Canada 100 To Iraq 32; U.K. 22; W.I. 19 U.S.A. 16; From Canada 77; W.I. 23 To W.I. 99 From Surinam 59; Canada 13; U.K. 20 From Sweden 68; Norway 13 To W.I. 100. From U.S.A. 64; France 30 To U.S.A. 47; W.I. 45. From U.K. 42; Canada 14; W. Germany 12
6. Railway sleepers	—	—	6,127	8,234	6,127*	8,234*			
7. Sawn Timber (conifer) ..	220,250	285,788	—	—	220,250	285,788			
8. Sawn Timber (non-conifer)	920	1,672	1,364,702	2,043,289	1,368,782*	2,041,617*			
9. Veneer, Plywood, Chip- board, etc.	—	119,089	—	38,188	—	80,901	103,832		
10. Fibreboard	—	143,711	—	—	—	143,711	140,614		
11. Boxes, Shooks, Cooperage etc.,	—	324,680	—	(b) 24,081	—	300,599	530,275		
12. Miscellaneous Manufac- tured Wooden Articles	—	44,181	—	695	—	43,486	38,817		

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FORM X.—(Cont'd)

**IMPORTS AND EXPORTS OF TIMBER, WOOD PRODUCTS AND
MINOR FOREST PRODUCTS DURING THE YEAR ENDED 31ST
DECEMBER, 1960.**

(Continued from page 25)

Category	Gross Imports		Gross Exports (a)		Nett Imports or Exports *		Average annual nett Imports or Exports for quinquennium ended 31.12.60		Percentage by value of gross imports from different sources or exports to different destinations during the year, 1960. 10% and over
	Q'ty.	Value \$	Q'ty.	Value \$	Q'ty.	Value \$	Q'ty.	Value \$	
13. Furniture & Cabinet ware		191,204		525		190,679		189,416	To Surinam 40; W.I. 37 U.S.A. 23.
14. Matches		1,505		46,505		45,000*		42,194*	From W.I. 27; U.S.A. 14; U.K. 16; CZ. 11
15. Newsprint		328,929		—		328,929		—	To W.I. 100; From U.S.A. 47; U.K. 37
16. Paper and Paper Board ..		694,122		—		694,122		—	From Canada 85
17. Paper and Paper Board Manufactures		1,270,489		310		1,270,179		2,071,096	From U.K. 39; Canada 19; Finland 10
18. Gums, Resins and Latex		37,891	(c)	530,551		492,660*		431,550*	To W.I. 80; Surinam 16 From U.K. 44; Canada 18; Netherlands 10
19. Tanstuffs				—		—		(d) 5,786	To U.K. 99;
20. Plaiting Materials and Manufactures		6,981		304		6,677			From U.S.A. 67; U.K. 10
		3,532,534		4,413,779		881,245*		597,952*	To U.S.A. 52; W.I. 42 From Hong Kong 60; U.K. 25.

Notes:— Quantities, where mentioned are given in cubic feet, the equivalent of round timber in true measure under bark.

- (a) Domestic Produce
- (b) Including Shingles 61,452 doz. valued at \$22,845.
- (c) Balata Latex
- (d) Not available.

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FORM XI.

**SUMMARY IN DOLLARS OF REVENUE AND EXPENDITURE FOR THE
YEAR ENDED 31ST DECEMBER, 1960.**

REVENUE*			EXPENDITURE											Surplus	
Royalty on Forest Produce	Other Forest Revenue	Total	Annually Recurrent										Special Non-Re- current		Grand Total
			Personal Emolu- ments	Travel- ling	Other Adminis- trative Charges	Equip- ment & Materials	Research and Investi- gations	Revenue Protec- tion	Silvicult- ure	Utilisa- tion	Miscel- laneous	Total Annually Recur- rent			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
422,574	14,241 (a)	436,815	240,878	29,550	39,209	2,890	4,558	867	21,867	(b)	7,810	347,629	5,876	353,505	83,310

* Crown Lands, Crown Forest

(a) Revenue from fees, licences, fines, compounding fees and seizures.

(b) Revenue and expenditure in connection with the Central Timber Manufacturing Plant are given at Appendix E.

FORM XI(a)

DEVELOPMENT EXPENDITURE IN DOLLARS*

SCHEME	Source of Funds	For the Year ended 31st December, 1960.				Total to 31.12.60
		Personal Emoluments	Other Charges	Capital	Total	
1. Central Timber Manufacturing Plant	Colony Revenue ..	—	—	4,468	4,468	288,065
2. Additional Temporary Staff ..	Colony Revenue & C.D. & W. Grants ..	1,104	6,570	—	7,674	109,873

* Revotes on 1959 provision

FORM XII

COMPARATIVE STATEMENT IN DOLLARS OF REVENUE AND EXPENDITURE (FROM FOREST DEPARTMENT VOTES) FOR THE YEAR ENDED 31st DECEMBER, 1960.

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
Revenue ..	236,720	302,960	295,551	392,544	448,200	467,672	437,184	421,153	429,766	436,815
Expenditure ..	143,136	148,500	160,170	190,317	225,248	242,246	254,792	278,110	281,816	353,505*
Surplus ..	93,584	154,460	135,381	202,227	222,952	225,426	182,392	143,043	147,950	83,310

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* The 1960 expenditure has increased because of the transfer of funds from Development to Annually Recurrent as follows:—

(a) Silviculture	\$ 21,867
(b) Forest Surveys	2,204
(c) Personal Emoluments	<u>20,949</u>

APPENDIX A

Explanation of terms used in the Report

The local currency sign \$ refers to British West Indian Dollars. The sterling equivalent of the dollar is 4s. 2d.

Alpha-cellulose:	the portion of lignin-free cellulosic material, obtained from wood, insoluble in 17.5% aqueous caustic soda. On hydrolysis it yields glucose sugar.
Balata:	the coagulated latex of the tree Manilkara bidentata, used in the manufacture of machine belting.
Ballahoo:	a flat bottomed boat.
Bateau:	a round bottomed, stemless boat with rising keelson.
Acoushi ant:	a leaf cutting ant of the genus Atta.
Division:	a major administrative unit, in charge of a senior officer.
Enumeration (survey):	the counting of trees, according to species and size, in a forest in order to classify the forest or determine the quantity of certain kinds of timber it contains.
Forest station:	the headquarters of any forest administrative unit, comprising officers' quarters, office accommodation, store-room, boathouse, etc.
Hoppus measure:	the volume of round timber obtained from the formula $\frac{(\text{girth})}{4} \times \frac{(\text{girth})}{4} \times \text{length.}$
Particle Board::	a material made by consolidating a mixture of wood particles (in the form of chips, shavings or sawdust) and glue into boards or sheets with pressure and heat.
Range:	a minor administrative unit, in charge of a subordinate officer.
Regeneration:	the renewal of a forest crop by natural or artificial means.
Seasoning:	the drying of timber, under suitable conditions, before use.
Stock-mapping:	the preparation of maps showing the distribution of different kinds of forest giving information about their composition, age, condition, etc., for management purposes.
Wood pulp:	Wood fibres which have been separated by chemical or mechanical means and used for making paper, textile, and many other products derived from cellulose.

APPENDIX B.

RAINFALL (in inches) 1960.

Locality of Guage	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
North West Division													
Mabaruma ..	5.23	2.21	1.11	8.26	11.85	14.7	14.89	11.63	6.93	9.27	15.21	9.18	110.47
Morawhanna ..	2.89	1.12	0.43	8.90	8.61	13.49	12.15	10.18	3.22	6.67	14.09	7.25	89.00
Hosororo ..	1.92	1.19	0.28	4.79	5.41	10.36	9.05	9.32	2.96	7.48	9.92	4.80	67.48
Acquero ..	4.09	2.86	0.96	7.21	12.08	29.35	7.69	5.20	2.02	2.74	8.39	7.24	89.83
Essequibo Division													
Winiperu ..	8.78	3.03	0.92	6.91	10.45	11.48	14.60	7.25	7.33	6.09	7.87	9.25	93.96
1½ miles Potaro Road	4.05	2.87	1.30	9.05	15.62	11.75	13.66	7.57	8.89	8.66	15.39	10.01	108.82
72 miles Potaro Road	3.70	4.38	1.40	6.79	15.24	7.96	5.21	2.77	5.24	3.42	7.31	4.02	67.44
Penal Settlement ..	4.85	1.90	1.10	5.57	15.47	10.39	10.43	7.95	6.02	8.88	11.32	8.67	92.55
Pickersgill ..	9.21	5.79	3.79	6.28	9.50	17.84	10.93	6.96	2.69	9.11	14.66	8.34	105.10
Demerara Division													
Ituni ..	6.22	5.75	0.74	15.00	16.10	10.71	12.68	8.35	2.24	3.31	5.02	4.03	90.15
Vreed-en-hoop ..	6.66	2.56	2.44	5.28	14.77	12.10	9.03	7.81	1.81	4.64	5.94	8.12	81.16
Georgetown ..	6.51	1.79	2.67	5.28	13.98	12.60	11.02	9.07	1.95	3.87	6.46	8.70	83.90
Mahaicony ..	3.06	3.84	0.46	7.03	7.15	8.25	10.16	7.36	0.20	4.56	3.15	8.77	63.99
Mahaica ..	22.1	0.51	0.99	4.36	10.26	8.68	10.75	4.55	Nil	2.85	6.06	7.84	78.95
Soesdyke ..	3.00	4.76	3.71	9.41	8.81	8.32	13.10	7.75	2.35	8.65	6.91	7.93	84.70
Mackenzie ..	5.23	3.22	0.72	9.68	17.51	10.82	10.75	9.81	7.60	5.08	6.32	8.42	95.16

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1918

RAINFALL (in inches) 1960. (Contd.)

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Berbice Division													
New Amsterdam ..	6.03	3.40	1.36	12.53	17.10	7.85	14.01	7.76	0.15	2.32	3.41	8.54	84.46
Skeldon ..	5.64	8.46	1.32	9.35	7.79	9.13	13.20	6.00	1.02	5.12	6.34	10.87	84.24
Rose Hall Front ..	5.45	3.00	1.62	10.31	11.72	5.22	16.52	8.61	Nil	2.46	4.15	8.36	77.42
Rose Hall Back ..	5.88	2.73	0.92	9.47	11.83	6.60	15.60	7.65	0.05	3.16	4.93	7.45	76.27
Kwakwani ..	5.34	6.78	0.62	5.98	16.14	13.98	11.33	4.48	3.68	2.03	2.60	3.95	76.91
Siparuta ..	6.49	5.74	0.41	6.42	20.31	8.55	9.86	4.77	1.06	3.37	4.93	3.36	75.27

Note: These figures were obtained from the Departments of Agriculture and Drainage and Irrigation.

APPENDIX C.

PRODUCTION OF TIMBER FROM GOVERNMENT FORESTS IN 1960.

(a) Logs, Splitwood and Roundwood.

Local Name	Botanical Name	Volume to nearest 100 cu. ft. (Hoppus)	Royalty to nearest \$10.00	Main Uses
1. Greenheart ..	<i>Ocotea rodiaei</i> ..	3,359,200	268,740	1 (Export trade), 5, 6, 8, 10 (Vat bottoms).
2. Crabwood ..	<i>Carapa guianensis</i> ..	429,000	34,320	5, 6, 7, 8, 13
3. Mora ..	<i>Mora excelsa</i> ..	338,700	16,940	4 (Export trade), 5, 6, 8, 12, 14 (Felloes, naves)
4. Wallaba ..	<i>Eperua</i> spp. ..	273,300	13,670	2 (Export trade) 3, 9, 19
5. Dalli ..	<i>Virola surinamensis</i> ..	164,700	4,940	7, 11, 18, (logs—export trade)
6. Kereti ..	<i>Ocotea</i> spp. ..	148,300	7,420	7, 11, 13, 16
7. Purpleheart ..	<i>Peltogyne</i> spp. ..	97,300	7,780	5, 6, 8, 13
8. Kabukalli ..	<i>Goupia glabra</i> ..	86,400	4,320	5, 6
9. Kurokai ..	<i>Protium decandrum</i> ..	55,200	2,760	7, 13
10. Kirikaua ..	<i>Iryanthera lancifolia</i> ..	54,300	2,720	7, 11, 16
11. Simarupa ..	<i>Simaruba amara</i> ..	48,700	2,440	7, 11, 16
12. Karahoro ..	<i>Didymopanax morototoni</i> ..	40,900	1,230	17 (splints)
13. Taruoniro ..	<i>Humiria balsamifera</i> ..	37,700	1,890	5, 6, 8
14. Duka ..	<i>Tapirira marchandii</i> ..	36,800	1,100	7, 11, 17 (boxes)
15. Brown and Yellow Silverballi ..	<i>Aniba</i> and <i>Licaria</i> spp. ..	18,400	1,470	7, 11, 13, 15, 16
16. Locust ..	<i>Hymenaea</i> spp. ..	17,600	1,410	5, 6, 8, 13
17. Futui ..	<i>Jacaranda copaia</i> ..	14,700	440	11, 16
18. Bulletwood ..	<i>Manilkara bidentata</i> ..	14,300	1,140	4, 5, 12, 14
19. Dukali ..	<i>Parahancornia amapa</i> ..	13,000	390	7, 11, 18, 16
20. White Cedar ..	<i>Tabebuia insignis</i> var. ..	10,800	320	7, 8
21. Red Cedar ..	<i>Cedrela odorata</i> ..	9,700	780	13
22. Manniballi ..	<i>Moronobea cocinea</i> ..	9,700	490	5, 13
23. Manni ..	<i>Symphonia globulifera</i> ..	7,300	370	5, 6, 8
24. Hububailli ..	<i>Loxopterygium sagotii</i> ..	6,500	330	13, 18
25. Tatabu ..	<i>Diplotropis puerpurea</i> ..	6,100	310	5, 13, 14, 15
26. Determa ..	<i>Ocotea rubra</i> ..	5,700	460	7
27. Baradan ..	<i>Ocotea tomentella</i> ..	5,200	160	11, 16
28. Warimia ..	<i>Tapirira guianensis</i> ..	4,600	140	7, 11, 17 (boxes)
29. Kurahara ..	<i>Calophyllum lucidum</i> ..	3,700	190	7, 13
30. Maho ..	<i>Sterculia pruriens</i> ..	2,400	70	11, 16
31. Kakaralli ..	<i>Eschweilera declorans</i> ..	2,300	120	1
32. Shibadan ..	<i>Drypetes variabilis</i> ..	2,100	110	18
33. Koraro ..	<i>Andira surinamensis</i> ..	2,100	110	1, 5, 14
34. Sawari Silverballi ..	<i>Ocotea canaliculata</i> ..	1,900	100	7, 13, 18
35. Pakuri ..	<i>Platonia insignis</i> ..	1,700	90	1, 13, 10
36. Aromata ..	<i>Clathrotropis brachypetala</i> ..	1,700	90	5, 13, 15
37. Suradan ..	<i>Hieronyma laxiflora</i> ..	1,600	80	4, 5, 13, 14, 15
38. Baromalli ..	<i>Catostemma altsonii</i> ..	1,300	40	7, 10, 11, 18
39. Hoa-hoa ..	<i>Hernandia sonora</i> ..	1,300	40	7, 18
All other spp.		25,800	890	
Total		5,362,000	380,410	

(b) Sawn lumber*

Category	Volume to nearest 100 ft. B.M.	Equivalent volume H.P. to nearest 100 cu. ft.	Royalty to nearest \$10.00
Class I	79,800	13,300	960
Class II	314,900	52,500	2,520
Class III	11,400	1,900	50
TOTAL	406,100	67,700	3,530

Note: * Lumber produced in saw-pits, royalty being paid on the sawn volume and not on the round log.

KEY TO USES.

- | | |
|----------------------------------------------|---------------------------------------|
| 1. Piles and other marine uses. | 10. Cooperage (tanks, tubs and vats). |
| 2. Transmission poles. | 11. Boxes, crates and shooks. |
| 3. Piling posts, staves (stakes) and staves. | 12. Bridges and culverts. |
| 4. Railway sleepers. | 13. Furniture and cabinet ware. |
| 5. Framing (including rafters). | 14. Wheelwright work (carts etc.) |
| 6. Walls (exterior sheathing). | 15. Boat building |
| 7. Walls (interior partitions). | 16. Concrete shuttering. |
| 8. Floors. | 17. Matches. |
| 9. Shingles. | 18. Plywood. |
| | 19. Particle-board. |

APPENDIX D

Price ranges in 1960 for the main timber species and other forest products

TIMBER

Lumber at Mill (price in cents per cubic foot)					Lumber ex Mill (price in cents per board foot)			
Species	Place	Minimum	Place	Maximum	Place	Minimum	Place	Maximum
1. (a) Greenheart (Shipping Squares)		.80c.	Georgetown	\$1.50				
(b) Greenheart (local)	Pomeroon	.42	Bartica					
2. Purpleheart	Bartica	.32	Siparuta	1.00	Pomeroon	.16	Georgetown	.28
3. Crabwood	Christianburg	.20	Mahaicony	.84	Pomeroon	.14	Georgetown	.22
4. Cedar, Red	Christianburg	.20	Siparuta	1.15	Siparuta	.12	Georgetown	.24
5. Mora	Waini Range	.18	Springlands	1.20	Springlands	.13	Barima	.36
6. Kurokai	Waini Range	.18	Springlands	.64	Pomeroon	.10	Georgetown	.20
7. Kereti	Parika	.14	Mahaicony	.38	Supenaam	.12	Christianburg	.20
			Siparuta	1.00	Waini Range		Christianburg	
8. Kabukalli	Paradise	.24	Siparuta	.50	Barima	.10	Paradise	.20
9. Simarupa	Waini Range	.14	Springlands	.84	Supenaam	.12	Georgetown	.25
10. Dalli	New Amsterdam	.06	Springlands	.40	Springlands	.12	Christianburg	.20
11. Silverballi (brown)	Barima	.12	Siparuta	1.15	New Amsterdam		Supenaam	.29
12. Tauroniro	Christianburg	.24	Mahaicony	.48	Barima Range	.10	Bartica	.32
	Paradise		New Amsterdam		Pomeroon	.11	Soesdyke	
13. Kirikaua	Barima	.12	Soesdyke	.36	Barima	.10	New Amsterdam	.20
14. Duka	Barima	.08	Parika	.36	Pomeroon	.06	Waini	.14
15. Karohoro	Soesdyke	.14	Siparuta	.60	Mahaicony	.08	Bartica	.14
							Georgetown	.16

OTHER FOREST PRODUCTS

Forest Products	Location	Price (Minimum)	Location	Price (Maximum)	Per Unit
Wallaba Transmission Poles	Springlands	\$.35	Mahaicony	\$ 1.50	Lin. ft.
Wallaba Posts, 3"—6" diameter	Pomeroon	.03	Georgetown	.10	Lin. ft.
Wallaba Posts, 6"—10" diameter	Pomeroon	.05	Parika	.24	Lin. ft.
Wallaba Vat Staves	Bartica	.06	Supenaam	.28	Lin. ft.
Wallaba Paling Staves	New Amsterdam	4.50	Pomeroon	12.00	100
Wallaba Shingles	Georgetown	12.00	Soesdyke	24.00	1000
Firewood	Siparuta	1.40	Springlands	10.50	Per ton
Charcoal	Mahaicony	1.50	Parika	3.00	Per cwt.
Mangrove bark	Barima	1.10	Barima	1.10	100 lbs.

APPENDIX E

CENTRAL TIMBER MANUFACTURING PLANT — TRADING ACCOUNT FOR THE YEAR 1960.

Stock on hand @ 1.1.60	Ft.B.M.	Average rate	Value	Total	Sales	Ft.B.M.	Average rate	Value	Value
Unseasoned sawn Seasoned sawn .. Manufactured Degrades ..	1,330,013	24.8	330,485.60	330,485.60	Private Individuals	291,181	28.3	82,460.79	
Public Works Department ..					96,832	31.4	30,429.16		
Other Government Departments ..					68,237	30.4	20,753.95		
Exports					67,509	37.7	25,486.53	159,130.43	
Timber Purchases	746,374	17.5	131,026.81	131,026.81	Stock on hand 31.12.60				
Wages					Unseasoned sawn ..	1,552,628			
Mill ..			33,393.69		Seasoned sawn ..				360,421.33
Yard ..			22,720.96		Manufactured				
Clerical ..			12,368.50	72,563.23	Degrades ..				
Office Wages ..			4,080.08		Loss in trading ..				25,733.99
Miscellaneous									
Fuel and Power ..			2,460.11						
Spares and Repairs ..			2,050.62						
Sundries ..			6,699.38	11,210.11					
				545,285.75					545,285.75

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Note (1) Value of stocks on hand:

746,374	21.5	160,470.41
806,254	24.8	199,950.92
		<u>360,421.33</u>

- (2) The stock on hand given is the book stock and has not yet been verified by physical stock taking.
 (3) Unfortunately loss in conversion cannot be calculated at this stage.