Chapter II

On Reconfiguring the Woods: The Opening of Timber Plantations in Travancore

The opening of plantations was necessarily the outcome of an emerging market economy of the time. ‘Production for market’ became the watchword which inevitably led to the artificial regeneration of forest species. The plantation of certain marketable species led to a kind of plant imperialism in Travancore by eliminating all sorts of least marketable ones. In certain cases indigenous species also got completely eliminated. The timber plantations in Travancore cannot be viewed as a separate segment but was part of a wider state agenda for getting an uninterrupted supply of timber for the market. A large scale transformation happened in the forested space of Travancore with the opening of these plantations. With this, the meaning of forest was completely changed and it was tamed to meet the increasing market demands. The scientific process of taming and training of the entire forest to solve the anxieties of the timber industries instantaneously happened in the native state.

Timber plantations can be defined as the artificial regeneration of trees, of marketable value, on a large tract of land. The rapid exploitation of hardwood and softwood timbers because of their commercial viability had resulted in the exhaustion of the timber resources across the world. This led the British to the conclusion that it was not safe to permanently depend on the supplies from the virgin forests. An earlier notion that forest resources were inexhaustible was completely rooted out and the idea of introducing plantations of timber was initiated. The main purpose of this was to acquire a systematic annual yield for commerce. A mature plantation would provide an increased yield as compared to a natural forest. The production and trade of timber was entirely drawn along the lines of scientific forestry. S.J. Duly in his book *Timber and Timber Products* mentioned that the British were aware of the need to safeguard the future by
“clearly marking out and dedicating the remaining virgin forests to the systematic production of timber under the care of trained scientific men.”¹

The forests of Travancore were also exhausted of valuable timbers, especially of teak, by the second half of the eighteenth century due to indiscriminate felling by the contractors. The scarcity of teak in Travancore was reported by Bourdillion. According to him, the category of timber delivered at the depot deteriorated annually which was a sign of teak becoming scarce. He further stated that J.S. Vernede in his diaries written over twenty years ago had recorded that the size of timber he was working down were so large that they required two elephants apiece to drag them. Some of the logs felled during the period exceeded 5 candies (80 cu ft.).² Bourdillion further stated that during his period the logs brought to the depot were third class timber and the average size seldom rose over 1 candy.³ Eventually, as the demand for teak increased and no other tree was found to be an ideal replacement for it, the government decided to plant teak artificially, leading to the birth of teak plantations.

M.P. Jacob in his report stated that natural reproduction of teak was very poor in Travancore and the teak forest was depleting in the state due to excessive felling. “The average quantity of teak timber worked down to and sold in the depots annually during the past 10 years was 3,64,995 cu. ft and the yearly revenue there from about Rs. 4,50,000. At the present rate of extraction, supply of teak timber from the areas outside reserves cannot last much longer than 10 years from now.”⁴ This statement shows how important it was to undertake a large scale plantation enterprise in the state to get an incessant supply of teak timber annually. The success of the teak plantations encouraged the government to undertake artificial regeneration of other timber trees also.

³ Ibid.
The chapter is designed to have two parts. The first part deals with the
description of the timber trees of Travancore and its uses whereas, the second part
compacts with the timber plantations of Travancore with a primary focus on teak
plantations.

**Timber Trees of Travancore**

Timber trees of Travancore proved to be an important resource base of the
native state. They were broadly divided into royalties, jungle wood, plantation
royalties, and plantation jungle wood. Royalties are teak, blackwood, ebony and
sandalwood, whether grown or found on government land or private land. These
could not be felled by any person without the permission of the government. These
trees were also declared as reserved trees under a notification given in the
Gazette by the Dewan.  

The gaze of the British and their scientific spirit played an important role in
the documentation of the timber resources of Travancore. They recorded not only
the different species of trees but also documented their utility, economic value, the
area of growth and the marketability of each and every species. Travancore’s
forests consisted of a wide variety of timber. There were nearly 650 indigenous
trees in the forest of Travancore. The timber in the deciduous forests, though less
in number of species, was very valuable and their utility is much greater. These
forests, however, suffered from grass fires. On the contrary, the trees in the heavy
moist forest though larger in variety were considered less valuable. Their utility
was recognized only with the onset of industrialization. They fetched a fair price in
the market when they began to be used for manufacturing plywood, packing cases

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7 Ibid.
A detailed description of a few of the major timber trees found in the forests of Travancore is given below.

**Teak (**Tectona grandis**)**

It is known as teak in English and *thekku* in Tamil. It is the most highly priced timber in the country and is rightly called the ‘monarch of the woods’.\(^\text{11}\) The botanical name of teak is *Tectona grandis*, formerly described by Carl Linnaeus the Younger in his 1782 work *Supplementum Plantarium*.\(^\text{12}\) The sapwood of teak is different from its heartwood. The sapwood is white or pale yellowish or greyish white in colour, while the heartwood is golden brown in colour.\(^\text{13}\) The tree belongs to the order of ‘verbenaceae’. It flowers in June and July and its fruit ripens in the dry weather from January to March. Teak grows best in a temperature ranging between 60°- 90° F. Though it can bear greater degree of cold it never attains large dimensions in such weather conditions.\(^\text{14}\) It has the ability to withstand prolonged drought. Due to this quality it is able to survive where no other tree will grow.\(^\text{15}\) The general growth of the tree is up to a height of 80 to 100 ft. up to the first branch, with a girth of 22 ft. It grows in open forests and requires much light. It attains its maturity from 80 to 100 years and is sometimes found to reach about 400 years old.\(^\text{16}\) The tree grows in all kinds of soil, but needs perfect drainage and dry subsoil.\(^\text{17}\)

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\(^\text{10}\) Ibid., p. 251.
\(^\text{11}\) V. Nagam Aiya, op. cit.
\(^\text{14}\) T.F. Bourdillion, op. cit., p. 126.
\(^\text{15}\) Ibid., p. 23.
\(^\text{16}\) V. Nagam Aiya, op. cit.
\(^\text{17}\) T.F. Bourdillion, op. cit.
The fine teak of Travancore was found in the hills at an elevation of 1,000 to 2,000 ft. The Achencovil and the Idiyara valleys were famous for their teak growth. In the words of Bourdillion, “I measured one on the hills above Acchancovil, which reached 22 feet in circumference, at 6 feet from the ground. I saw other fine trees on the Alappada ridge, to the North of Acchancovil.”  

There was excellent teak growth in different places of the Meenachil Range like Talanad, Mavady, Vadakamala, Kokamala, Neelur etc. Young teak was largely found in Kurinjiplamala, Thalappalam, Kunnoni etc. In the eighteenth century a teak tree was said to have been felled in the Idiyara Valley which measured 7 ft. in diameter at its base and 26 inches in diameter at 70 ft. from its base yielding about 900 cu ft. of timber. The price of teak in Travancore during the time of Bourdillion was Rs.10 to Rs.17 per candy or 10 annas to 1 Rupee a cu ft. The teak trees were suitable for plantation due to its rapid growth, the abundance of seeds and the ease with which it could be collected, and raised into saplings, “and above all due to its natural habit of gregariousness, which enables to raise a larger number of trees in a given area, than would be possible with many other trees.”  

_Burma teak, on the other hand, is much lighter._

**Kol Teak**

The word _kol_ means a stick or pole of any sort, or a measure used for calculating the dimensions of timber. It can be the timber of a sapling teak or teak of small size from which only a _kol_ length of timber can be cut. In the proclamation of (1028 ME) (AD 1852 - 1853), _kol_ teak was defined as all teak under 10 _vannams_ which is equal to 12½ inches of quarter girth. The report of the Forest Commission in 1884 defines _kol_ teak as ‘teak growing in poor soil and in the open country’. Thus, _kol_ teak is teak growing in unfavourable conditions,

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18 Ibid. p.50, para.362
19 K.S. Narayana Iyengar, Divisional Forest Officer, Working Scheme of the Meenachil Range, 1922, Kottayam Division, Development File No. 1802, B - 84.
22 V. Nagam Aiya, op. cit., pp. 80 - 81.
23 T.F Bourdillion, op.cit., p. 126, para.916
which never attain large dimensions. It is darker in colour, and is considerably heavier.\textsuperscript{24} It does not grow more than 3 ft. in girth. The forests in the vicinity of Palli or Vadasseri river contained large numbers of *kol* teak.

**Fig. 2.1**

*Map Showing the Extent of Teak forest in Travancore, AD 1893*

\textsuperscript{24} Ibid.

\textit{Source: T.F. Bourdillion Report on the Forest of Travancore, 1893}
Ebony (*Diospyros assimilis*)

This is known as ebony in English and *karungali* in Malayalam. This is a large tree of 80 - 90 ft. in height and 6 to 8 ft. in girth. It requires considerable rainfall. The bark of this tree is black, smooth and covered with grey lichen. In Travancore, ebony is not commonly found. Bourdillion in his reports stated that he had seen them in abundance in the dense forest between Nellikal and Sabarimala Pagoda, from where it had never been felled. According to him, whenever ebony was required it was usually procured from the forest near Shencottah. Ebony felled in the Shendurney Working Circle was mainly used for making furniture and other refined purposes. It had a large demand then in China, for making chop sticks. Its advantages are strength, durability, and fine appearance. The price of ebony was Rs. 10 to 25 a candy.

Blackwood (*Dalbergia latifolia*)

Known as blackwood or rose wood in English and *eetty* in Malayalam, in Travancore there are two species of trees that yield blackwood, i.e., *Dalbergia latifolia* and *Dalbergia sissoides*. It is a handsome tree with light foliage, a cylindrical stem and rusty bark. It attains enormous size in Malabar and is often crooked. It is one of the most valuable trees of the Travancore forest. It reaches its greatest size and height at an elevation of over 1000 ft. As regards soil, it

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25 V. Nagam Aiya, op. cit., p. 81.
26 T.F. Bourdillion, op. cit., p. 137, para. 977
28 T.F. Bourdillion, op. cit., p. 138, para. 980
29 Ibid.
grows best in rich soil.\textsuperscript{30} Blackwood of good size was found in fair abundance in the Achencovil valley.\textsuperscript{31} These trees were largely found in parts of Teakoyil, Marmala, Adukom, Parathanam, Cherikal, Mangapara etc., in the Meenachil Range. Lower classes of blackwood trees were distributed largely throughout Kanjirapalli Pakuthi, Anikad, Panaamettom, Pambady and also between Nellapara and Pezhagu.\textsuperscript{32} Blackwood has the power to resist transverse strain.\textsuperscript{33} It is largely used in the manufacture of furniture, doors, windows and boxes. In other parts of India it is used in boat building, making of gun carriages, agricultural implements such as ploughs, carts, wheels etc.\textsuperscript{34}

Due to its higher price and comparative scarcity, this tree is seldom used within Travancore for building purposes. The wasteful method of felling trees added to the scarcity of the timber. Therefore, the Conservator issued a circular prohibiting the wasteful felling of blackwood timber. Special rules were issued for felling the blackwood trees. As per the circular it was stated that, “no black wood tree, anywhere in the state forests, should be felled in future, above the ground as is done now, thereby causing loss of valuable basal timber which commands a high price in the market. Such trees should be dug out and allowed to fall by their own leverage by cutting the main side roots, and should, under no circumstances, be felled by the contractors or departmental subordinates engaged in timber working.”\textsuperscript{35} During the time of

\textsuperscript{30} T.F. Bourdillion, op. cit., p. 136, para. 965.
\textsuperscript{32} K.S. Narayana Iyengar, op. cit.
\textsuperscript{33} T.F. Bourdillion, op. cit., p. 136, para. 970.
\textsuperscript{34} Ibid., para. 972.
\textsuperscript{35} M. Rama Rao, Conservator of Forest, Conservator’s Circular, regarding rules for felling blackwood, No. 9, dated 27/05/1913, Forest File No. 1601/29.
Bourdillion, blackwood was valued at about Rs.16 per candy. The greater part of this timber sold in Travancore was exported to Bombay where it found a ready sale.\(^{36}\) This wood was very common in the hills drained by the Vadasseri River, the southern most river in Travancore.\(^{37}\)

**Sandalwood** (*Santalum album*)

Sandalwood, in Malayalam is called *chandanam*. Being short in size it never attains a height of more than 20 ft.\(^{38}\) It is popular for its highly scented and valuable timber. In Travancore this is commonly found in the Anjanada Valley. There are three varieties of Sandalwood, viz, white, yellow and red.\(^{39}\) This wood is ideal for carving and other ornamental works. It is also used to make small boxes, walking sticks, pen holders and other fine articles. Sandalwood is utilized to produce a paste called *chandanam* used by Hindus for their caste marks.\(^{40}\)

Sandalwood was exported to China from Travancore from time immemorial. Large quantities of oil were distilled from the wood.\(^{41}\) The value of sandalwood on account of its high demand was \(\frac{1}{2}\) Rupee per pound.\(^{42}\) Sandalwood plantation requires three necessary conditions i.e., good soil, an elevation not less than 1000 ft. and light rainfall. The places where all these conditions prevail are some parts of the Peermade plateau, the Anjanada valley or the hills of Shencottah.\(^{43}\)

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\(^{36}\) T.F. Bourdillion, op. cit., p.137, para. 972.

\(^{37}\) Ibid., pp. 22 - 23.

\(^{38}\) Ibid., para. 981.

\(^{39}\) V. Nagam Aiya, op. cit., p. 82.

\(^{40}\) Ibid.

\(^{41}\) T.F. Bourdillion, op. cit., p. 139, para. 987.

\(^{42}\) Ibid., para. 988.

\(^{43}\) Ibid., para. 989.
Ayani (*Artocarpus hirsutus*)

This lofty and handsome tree grows in Travancore at an elevation of 0 - 8000 ft.\(^{44}\) Its common name is *anjily* in Malayalam and Ayani in English. It is the most useful wood after the royal timbers. This is a rapidly growing tree and is widely used for boat making. The snake boat used in the famous Aranmula boat race is built with *anjily*. It is also used in building ships and houses. The weight of a cubic foot of unseasoned wood is about 48 lbs. and that of seasoned from 34 to 42 lbs.\(^{45}\) The price of *anjily* log was about 12 rupees a *candy*. It was usually sold in planks, which was sold at the rate of 300 rupees per codge of 20, equivalent to Rs. 20 a *candy*.\(^{46}\) On account of its rapid growth it is well suited for plantation. The quantity felled annually according to Bourdillion was some 2000 *candies*. But in 1859, Crawford, the Commercial Agent at Alleppey estimated the export at 4000 *candies* which was only a half of what was annually felled.\(^{47}\) *Anjily* felled from the Shendurney forests were sawn or cut into marketable items like logs, scantlings, or fashioned into different products. *Anjily* planks were used for ship building and were also used for rafters, bressumers etc., in house building.\(^{48}\)

Kambagom (*Hopea parviflora*)

This is also called as *Kongu*. This lofty tree thrives best in heavy moist forests.\(^{49}\) It was widely used for railway sleepers and there was a high demand for *Kongu* sleepers in Travancore. One of the letters of the Conservator stated that in 1916 they had only supplied *Kongu* sleepers both broad gauge and metre gauge, to the

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\(^{44}\) V. Nagam Aiya, op. cit.
\(^{45}\) T.F. Bourdillion, op. cit., p. 139, para. 995.
\(^{46}\) Ibid., para. 997.
\(^{47}\) Ibid., p.140, para.993.
\(^{48}\) T.S. Venugopala Iyer, op. cit.
\(^{49}\) V. Nagam Aiya, op. cit., p. 82.
South Indian Railway at Rs.7-8-0 and 3-4-0 per sleeper respectively.\(^{50}\) It was found at suitable elevations all along the hill slopes in South Travancore but had been cut extensively in coffee estates for building purposes. Kongu boats were in great demand during the nineteenth century but the transportation of the timber was very difficult due to its heavy weight.\(^{51}\) According to Bourdillion, large quantity of felling in the Puliyara depot had depleted the forests of Kongu, where it was abundantly found.\(^{52}\) It was also found in abundance on the banks of the Kotha river.\(^{53}\) Kambagom, cut into beams, scantlings, double rafters, joists, boards, single rafters etc., from Shendurney forests were mainly used for bridge and house building. Shafts were used for making carriages. Frames were used for railway sleepers and mine props.\(^{54}\)

There was a great demand for this timber for the purpose of building boats. Every year permits were given for 500 boats to be built. About 8000 candies were disposed off annually. The price of the timber was about Rs.12 per candy in logs. The timber was mainly exported to Tinnevelly and the eastern coast. An increasingly large quantity was also used within Travancore.\(^{55}\)

**Venga (Pterocarpus marsupium)**

*Venga* is the local name of this tree. It yields a large quantity of timber per tree and is considered very useful for making furniture. It was widely dispersed in the Travancore forest.\(^{56}\) Bourdillion stated that in spite of the increased felling every year, the tree was still common in Travancore.\(^{57}\) The tree yields a resinous substance which was exported in large quantities. This is the gum Kino used primarily for dyeing and calico-printing.\(^{58}\) The price of *venga* in logs was about 8 to 10 rupees per candy. According to Bourdillion some 4000 candies were brought annually to the depot and sold from there on permit. Major portion of the export of *venga* was to Tinnevelly and

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\(^{50}\) Letter No. nil, dated 8/09/1917, from the Conservator to the Chief Secretary to the Government, Forest File No. 478/1917, B - 116.

\(^{51}\) N.N. Menon, op. cit., p. 43.

\(^{52}\) T.F. Bourdillion, op. cit., p. 141, para. 1001.

\(^{53}\) Ibid., p. 31.

\(^{54}\) T.S. Venugopala Iyer, op. cit.

\(^{55}\) Ibid., para. 1007.

\(^{56}\) V. Nagam Aiya, op. cit., p. 83.

\(^{57}\) T.F. Bourdillion, op. cit., p. 142, para. 1011.

\(^{58}\) V. Nagam Aiya, op. cit.
Madura. It was found abundantly on the banks of the Kotha river. Beams, batten, planks, axil cuts from *venga* were used for building houses and carts.

**Thembavu (*Terminalia tomenosa*)**

The local name of this is *Thembavu*. It is a huge tree often found in company with teak and other trees. The wood is dark brown, hard and heavy and was widely used for house building purposes. It is however considered a poor timber as its strength and durability are uncertain. According to Bourdillion, the quantity of Thembavu sold annually was about 6000 *candies*. The wood does not season readily and is prone to warp. Its price was about 6 to 8 Rupees per *candy* in logs. Thembavu beams, battens and boards were used for building houses, making furniture and railway sleepers. Planks were used for ship building. Its rafters were used for house building and shingles.

**White Cedar (*Dysoxylum malabaricum*)**

This tree is known as White Cedar in English and *Vella agil* in regional language. This is often found in the moist forests along the west coast. The White Cedar found in Peermade is of the species *Heynea trajuga*. The wood of the White Cedar is pale yellow in colour, with a smooth silky vein, sweet-scented and can be easily worked upon. The wood is moderately hard, moderately heavy and the average weight is 734 kg/m$^3$ at 12% moisture content. It is a diffuse porous wood. Bourdillion stated that it was becoming scarce and if the timber was easily procurable it would find a ready market in Cochin.
The statistics of the annual import of White Cedar to Cochin furnished by John Grieve to Bourdillion was as follows.\(^69\)

<table>
<thead>
<tr>
<th>Place</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calicut</td>
<td>13,000 candies</td>
</tr>
<tr>
<td>Trichur</td>
<td>2,000 candies</td>
</tr>
<tr>
<td>Malayattur</td>
<td>2,000 candies</td>
</tr>
<tr>
<td>Alleppey</td>
<td>4,000 candies</td>
</tr>
</tbody>
</table>

The timber of the White Cedar was extensively used for the construction of casks for the conveyance of coconut oil to England. Its price was about 8 to 9 rupees a candy for logs. Most of the timber felled in Travancore was sent to Cochin.\(^70\)

**Venteak (Lagerstroemia lanceolata)**

In Malayalam it is known as vellilavu or ven-thekku. This tree is commonly found in deciduous and evergreen forests up to a height of 3000 ft. It is a large tree with a fairly straight trunk. The sapwood is different from the heartwood. It is greyish or pinkish in colour, while the heartwood is lightly reddish brown turning to walnut brown on exposure. The wood is similar to that of jarul (Lagerstroemia speciosa).\(^71\) The timber is used for boat building, furniture, shingles and house building. Its pith is not attacked by white ants.\(^72\) However, Nagam Aiya did not consider this timber to be strong or able to withstand harsh weather conditions.\(^73\)

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70 Ibid., para.1029 - 1031.
71 Rao and Juneja, op. cit., p. 63.
73 V. Nagam Aiya, op. cit.
Irul (*Xylica xylocarpa*)

Commonly known as *irul*, this is mainly found in North Travancore. It is a large tree that grows to a height of 80 to 100 ft. with a girth of about 9 ft. The sapwood is pale brownish or pinkish white in colour and the heartwood is light to dark reddish brown. Its average weight is 850 kg/m$^3$ at 12% moisture. It is a diffuse porous wood.\(^74\) The wood is hard, heavy, and durable. It is used for boats, sleepers, carts, house-building etc. The timber lasts for long under water and therefore it was used for the construction of bridges.

Red Cedar (*Cedrela toona*)

Red Cedar is known as *madagiri vembu* in Malayalam. This tree is well suited for plantations and grows well along with *anjily*. It is called the ‘Mahogany of India’.\(^75\) It is a fast growing tree. The wood is coarse, red and sweet-scented and closely resembles the wood used in England for cigar boxes. It is durable and not affected by termites.\(^76\) The timber was used for tea boxes, shingles, and cigar boxes. It was also used for house building and carving.\(^77\)

Forests Trees in the Kottayam Division

A description of the area was piloted during the time of the preparation of the working scheme for this Division. The whole forest was put under the Ranni Working Circle which was further divided into two blocks viz, Azhutha and Pampa. The area west of Azhutha consisted mainly of deciduous species like teak, blackwood, *thembavu*, venteak, *vengai*, *irul* etc. To the east of Azhutha, *kongu*, *agil*, *anjily*, *elavu*, and *payin* trees were found.\(^78\)

\(^{74}\) Rao and Juneja, op. cit., p. 78.
\(^{75}\) V. Nagam Aiya, op. cit.
\(^{76}\) T.F. Bourdillion, op. cit., p. 145, para. 1037.
\(^{77}\) V. Nagam Aiya, op. cit.
\(^{78}\) M.O. Ommen, Assistant Conservator of Forest, *A Simple Working Scheme for the Exploitation of Reserved Forests in the Kottayam Division*, 1922, Development File No. 446/26, B - 55.
species like unnam, vaha, punna, maruthi etc. were also found here. Good quality teak and blackwood trees of exploitable age were found near Thekkumala, Mankunnunumala, and on the way to Kozhakkuchera from Cheruvally.\textsuperscript{79} Pure patches of irul which appeared to be natural plantations were found at Peruthode and at Chendadoorthadam. Poovan was present in abundance between Asamban and Kosady, especially near the Paschimakanom. Another valley where trees were found in abundance was between Sabarimala and Kollanku, near Pamba Kadavu. Exclusive patches of teak could be seen growing in abundance on the banks of the Kallar.\textsuperscript{80}

**Forest Trees in the Central Division**

Forests of Konni, Achencovil, Anakulam, Rajampara, Shethacal, Shethacal extension, and Valiakavu were under this division. Here we can find three classes of forests namely the evergreen forest, the deciduous forest, and the secondary forest.\textsuperscript{81} Among the different species teak, anjili, agil, punnappamaram, vangai, thembavu, maila, irul, venteak, mani maruthy, devatharam, maruthu, manjakadambu, cahai, unnam, pathiri, mukkayani, ilavu, sheeni and kolamavu were treated as principal species. Malayunnam, mazhukanjiram, mavu, nedunnar, kadukka, venkotta, thanni, poovan, konnai, karanjili, vengara pala, cheeni, kumoil, kanjiram etc., were treated as auxiliary species.\textsuperscript{82} The evergreen forests of this division consisted of a large variety of species. Among them only agil, anjili, kambagom, ebony, blackwood and punnappamaram were valuable on account of its marketability. The deciduous forests trees were teak, vengai, thembavu, irul, venteak, maruthy, vaha, mulluvengai, unnam etc.\textsuperscript{83}

\textsuperscript{79} Ibid.
\textsuperscript{80} Ibid.
\textsuperscript{81} Letter No.1374/1097, dated 1/4/1922, from the Conservator of Forests, V. Raman Menon to the Chief Secretary to government, *A Simple Working Scheme of the Reserved Forests of the Central Division*, Development File No. 446/26, B - 55.
\textsuperscript{82} Ibid.
\textsuperscript{83} Ibid.
Forest Trees in the Southern Division

The principal trees found in the Mahendragiri forest were tamarind, teak, blackwood, vekkali, vaga, venteak etc. Other important trees used as firewood were, odai, usil, vadathale, athi, malankarai, kottei, vanderlei, virali and naragam. Trees such as venteak, kadamba, meili, mullu venga, thanni were found commonly in the region drained by Palli river. Filicium decipiens, seen in the Peermade plateau and not elsewhere in Travancore, was found here. Teak and blackwood were found on the basin of Parali river. Jack, red wood, and enna were found on Neyyar basin. One of the special trees found on the Paloda basin was Humboldtia alata which Bourdillion called as a very curious endemic tree.

Forest Trees in the Northern Division

Teak was abundantly found in the Arakkulam and Velliamattam valleys of Muvattupuzha river. Blackwood, venteak, white cedar, anjili, venga, vaga etc. were other trees found in the region. kambagam, anjily, white cedar, venga, venteak, shurali, poon spar, mala uram etc., were found in the Periyar region. Teak and Irusl grew in fair abundance in the Periyar basin. Teak was found especially in the lower elevations.

Rules for Felling Timber

Chapter V of the Act of 1068 ME (AD 1892 - 93) empowered the Dewan to frame rules regarding the cutting and transporting of timber to and

84 Ibid., para.140.
85 Letter No. 843, dated 24/06/1925, op. cit.
86 Ibid., p. 69.
87 T.F. Bourdillion, op.cit., p. 92.
89 Malayalam Era (ME) or Kolla Varsham 1068 corresponds to the English year of 1892-1893. This is because a Malayalam Era starts at the mid of English year, in the month of August and ends with August in the succeeding year. Hereafter the ME will be shown as spread out in two English years corresponding to the Gregorian Calendar.
from the state of Travancore. The important rules framed by him with the sanction of the government were as follows:90

1) Rules for regulating or prohibiting the felling, lopping, cutting, maiming or maltreatment of any tree which were listed as royalties or reserved trees, were formulated.

2) Rules were issued for the movement of timber to and from the state of Travancore. It could be transported only through the underlined routes prescribed by the government.

3) Timber could not be moved for trade within the local limits without obtaining a pass. This pass would be either issued by the owner of the land from where the timber was removed or by an officer who was entrusted with the task. For this purpose, a form was given detailing their issue, production and return.

4) By rule, stations were established at defined local limits for verification and marking of timber. Officers were appointed at such stations for effective management.

5) Rules were laid down prescribing the prices, fees, seigniorage and other charges to be paid to the government.

6) Transport of timber from forest limit to lands could be made only during the particular hours prescribed in the rules by the government.

7) Any act which might cause obstruction or closing of channels and rivers which prohibit the transaction of timber would be punishable.

8) For the protection of the revenue from the forests it was highlighted that the holder of every pass issued under Section 33 was bound to produce it for inspection if required by any Magistrate, Forest Officers or the Police.

Teak Plantation in Travancore

Teak is the best and the most profitable of forest trees that could be grown in the Travancore forests under plantation conditions. One of the important features of teak plantation was that they could be cheaply grown and there was a high demand for both its timber and the residue obtained from the thinning process.\(^{91}\) From a financial point of view teak was an incomparable and irreplaceable plantation crop. Teak plantation in Travancore was one of the oldest, and significant tropical timber plantations. By 1650, the Dutch tried it on a small scale in Indonesia. Nilambur teak plantations of 1841 were a success on the part of the British East India Company. This success encouraged them to come up with more plantations in the tropics.\(^{92}\) Teak plantations became more commercial by the late nineteenth century. Botanical explorations and botanical gardens helped to develop plantation possibilities.\(^{93}\) With the introduction of scientific forestry the colonial bureaucrats aimed at the money yielding resources in the forest. They resorted to sylvicultural plantations in different parts of South India, which revealed the confidence of the colonial state in manipulating nature.\(^{94}\) Scientific forestry in its beginning aimed at three important processes:\(^{95}\)

1) Institutionalization of forest for better governance.

2) Exploration of teak and other valuable timber.

3) Introduction of sylvicultural plantations to get a frequent flow of timber for infrastructural projects of the state.

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\(^{91}\) M.P. Jacob, op. cit., p. 24.


\(^{93}\) Ibid., p. 59.


\(^{95}\) Ibid., p. 245.
Fig. 2.2
Forest Map of Travancore Showing Teak Plantations, AD1931

Source: Divisional Forest Office, Malayattur.
Note: yellow colour indicates extend of teak plantations
Planting of teak was one of the foremost and challenging endeavors carried out by the Forest Department of the state. Teak was the only tree monopolized by the state during the early colonial period. It was considered as a royal prerogative and was considered the right of the government to remove teak even from private holdings. The chiefs in Kerala were not allowed to remove teak from their *edavagas*. There were instances of frequent complaints made by chiefs of various *edavagas* for not allowing them to remove teak from their own land. In 1073 ME (AD 1897 - 98) the Edappally chief complained to the government about the cutting and removal of teak from his *edavaga* (Kalluppara Poverthy) by the government contractors. After hearing the complaint it was decided, through the letter No. 3404, dated 23 Kumbham 1073 ME, that he was entitled to one-fourth of the value of timber under Section 31 of the Forest Regulations.\(^9^6\) In Travancore, the right to royal trees and the right to capture elephants exclusively belonged to the sovereign and were treated as royal privileges. The status of the *edavaga* chief was reduced to that of a *Jenmi* holder.

In the 1860’s the government began to devote great attention to plantation industries. The most important reason for the establishment of plantations was the increasing demand for forest products and the subsequent resource crunch from natural forests.\(^9^7\) The first tree selected for plantation purposes was teak. The idea of teak plantation in Travancore was the brain child of Dewan Raja Sir T. Madhava Rao. In his letter to Resident Fisher No. 73, dated 9 January 1864, he emphasized the necessity of restocking the depleted forest by planting teak.\(^9^8\)

**Features of Teak Growth**

Teak never grows in all places. In South Travancore, though it was found in plenty, it never attained a large size. This was mainly because of the less amount of rain fall that the south received when compared to the north. In the north, which receives heavy rainfall, the tree attained larger dimensions. As regards the soil condition for its growth, it grows only in soil which has perfect drainage. It does not grow in swamps and other watery places.\(^9^9\)


\(^9^7\) Caroline Sargent and Stephen Bass, (ed.), *op. cit.*, p. 44.


Another characteristic feature of teak is that once the seed grows into seedling it rests from its growth for three months, every year. Therefore, it is considered impossible for teak to grow in evergreen forests as the evergreen trees and shrubs would encroach upon it during the time of its growth rest. Bourdillion stated in his report that in 1907 about 80 acres of teak plantations were destroyed by evergreen trees due to the lack of proper weeding. For the success of a teak plantation, evergreen trees are a hindrance and need to be weeded out. This points to the fact that large scale destruction of forests was ensued to initiate the plantations. Almost all of the forests contained different species of plants, shrubs, trees, biological species etc. These diversified species were thus, destroyed with the introduction of the teak plantations in Travancore.

The first teak plantation in Travancore was started in Vemburam Island near Malayattur in 1040 ME (AD 1864 - 65), and it ended in failure. The reason for the failure of the teak plantation was analyzed and the Forest Department came to the conclusion that it was mainly due to two causes:

1) The lack of experienced hands employed in the undertaking.

2) The place selected for the purpose was not salubrious for teak growth.

The administrators from then onwards planned to bring experts to Travancore for the success of the teak plantations. As a result, in 1043 ME (AD 1867-68) Mr. Thomas who was well trained at Nilambur was appointed the Assistant Conservator and was posted at Konni. The Conservator at that time was Vernede who might have visited the teak plantations in Nilambur, before planting teak for the second time. This can be inferred from his statement that “considering the ages of plantations, the trees in Travancore seem to be healthier than those of Nilambur. One great advantage which our plantations have over the Nilambur ones was the richness and fertility of the soil.”

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100 Ibid.
101 Ibid.
103 Ibid.
General Description of the Plantations

The teak plantations in Travancore were situated in three distinct localities, i.e., Malayattur, Konni, and Quilon. The main reason for selecting these three distinct areas for teak plantation was their salubrious climate for the growth of teak.

Malayattur Plantations

They are situated along both banks of the Periyar River, a few miles above Malayattur, the headquarters of the forest division. The first regular plantations were initiated at Konni and Malayattur in 1042 ME (AD 1866 - 1867). The trees in the Malayattur plantations (see fig.2.3) were planted at a distance of 12’×12’or 15’×15’ having 302 to 193 trees per acre. From 1050 to 1067 ME (AD 1874 - 1875 to 1891-1892) there was no planting at Malayattur due to the fever prone character of the area.104 These plantations were divided into two groups, the old group and the Perunthode group (see fig.2.4). The former consisting of 5 compartments and 119.66 acres, and the latter consisting of 13 compartments and 631.76 acres.

Fig. 2.3
Sketch Showing the Malayattur Teak Plantations

Source: Divisional Forest Office, Malayattur.

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104 M.P. Jacob, op. cit., p. 2.
Konni Plantations

Konni plantations, (see fig. 2.5) situate on the bank of the Konni or Achencovil river, commencing from a place called Kummannur, about 3 miles higher up the river from Konni. The first plantation at Konni was initiated at Aravipalam (Aruvapalam) a few miles south east of Konniyur in 1042 ME (AD 1866 - 1867) with 38 acres and by the end of 1049 ME (AD 1873 - 1874) it was increased to 200 acres. In 1057 ME (AD 1881 - 1882) the Valapara plantation was
opened with an area of 70 acres. In spite of the advantages of the climate, soil and position, this plantation was not a success at first mainly due to the attempt to open them at a very cheap cost. Later this mistake was rectified which then resulted in great success.

During the same year very extensive work was done in Konni which came to about 200 acres, but the work suffered much due to heavy flood. The Konni plantation was divided into 15 compartments. The total area under it from 1042 to 1082 ME (AD 1866 - 1867 to 1906 - 1907) was 1332.71 acres. The system of monthly-paid coolies was introduced during 1064 ME (AD 1888 - 1889) to work in the young plantations. However, this was discontinued after two years and a daily labour system was introduced, as it was found to be more suitable. Fire patrols were introduced in 1066 ME (AD 1890 - 1891) for protecting the area from fire.

**Aryankavu Plantations**

They were situated on the Mundukkupattu lands, a block of about 2000 acres of undulating ground near Aryankavu, including the Palaruvi estate of His Highness the Maharaja. This area was handed over to the Forest Department in 1065 ME (AD 1889 - 90). The land within the Mundukkupattu land was given for plantain cultivation for ten years on the payment of a rent of Rs. 4 per acre. This was done with the aim that when the land was given back to the department at the end of 10 years it could be easily and cheaply planted with teak, securing at the same time some revenue during the interval. 576 acres were thus given. The greatest advantage of teak plantations here was that all the saplings cut from the plantations would find a ready market and fetch high prices.

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105 N.N. Menon, op. cit., p. 43.
106 Ibid.
107 M.P. Jacob, op. cit. p. 3.
108 Ibid.
109 Ibid.
110 Ibid.
111 Ibid., p. 4.
112 Letter No. 230, dated 10/04/1885, from the Conservator to the Dewan of Travancore, seen in M.P. Jacob, Ibid., p. 3.
Extension of the Teak plantations

Later as an experiment, plantations were again started at Konni and Malayattur. Between 1867 and 1874, 392 acres i.e., 200 at Konni and 192 at Malayattur had been planted with teak. Though the planting work at Konni was continued, at Malayattur it was not continued for many years between 1050 - 1067 ME (AD 1874-1875 to 1891-1892) as the process proved to be more expensive and the place was highly prone to malaria. In 1065 ME (AD 1889 - 1890) plantations were started at Aryankavu by clearing an area of 150 acres. However, it ended in failure due to the unfavorable climatic conditions and inadequate attention. In 1066

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113 V.K. Govinda Menon, op.cit.
ME (AD 1890 - 1891), Bourdillion was appointed the Conservator of Forests. From 1068 ME (AD 1892 - 1893) onwards, planting became more systematic and regular.

It can be said that from 1068 ME (AD 1892 - 1893) planting of teak entered the second phase in its development stage.\textsuperscript{114} The Report and Working Scheme for the Travancore teak plantations stated that the second stage “covers a period of about 15 years from 1068 to 1082 ME (AD 1892 - 1893 to 1906 - 1907). During that period, the necessity and importance of frequent thinning in the older plantations was realized and a set of rules were framed for the guidance of the officers carrying out marking for thinning. A scheme was also drawn up for regulating the thinning in various plantations.”\textsuperscript{115} In 1067 ME (AD 1891 - 1892) an area of 36 acres was again opened for teak plantations, which proved to be a great success.\textsuperscript{116} Thus, the extension of teak plantations in the state underwent a rapid change and it was progressive in nature. During this period some exotic species were introduced into Travancore such as \textit{Ailanthus grandis}, \textit{Berrya ammonilla}, \textit{Cinnamomum camphora} etc. The experiment of planting \textit{anjily} trees with teak in the Konni Division in about 50 acres proved to be a success. Some \textit{kongu} trees were also planted on the edges of certain swampy areas in the plantations.\textsuperscript{117}

The third stage of the development of teak plantations commenced from 1083 ME (AD 1907 -1908). The year witnessed the introduction of the system of selling on site the tree growth in the planting area. This was a great problem during the previous years. It was first introduced in Aryankavu and then extended to all the other divisions.\textsuperscript{118} In 1086 ME (AD 1910 - 1911), 100 acres of land stocked with secondary growth at Aryankavu was marked, demarcated and surveyed for opening a teak plantation. The tree growth there was sold by public auction to the highest bidder.\textsuperscript{119} This not only helped in the timely planting of teak trees but also earned an annual revenue for the department. This was an encouragement to the

\begin{itemize}
  \item \textsuperscript{114} M.P. Jacob, op. cit.
  \item \textsuperscript{115} Ibid.
  \item \textsuperscript{116} T.K. Velu Pillai, op. cit., p. 256.
  \item \textsuperscript{117} M.P. Jacob, op. cit.
  \item \textsuperscript{118} Ibid.
  \item \textsuperscript{119} Letter No. 635/1086, dated 1/10/1910, from the Conservator of Forest, M. Rama Rao Garu to the Chief Secretary to Government, Trivandrum, Forest File No. 725, B - 35
\end{itemize}
department and during a period of fifteen years the area of plantations increased to 2759 acres against 1743 acres during the preceding fifteen years.\textsuperscript{120}

The success of the plantations encouraged the government and it went forward with more extensive programs of plantations in the state. By the close of 1094 ME (AD 1918 - 1919) the Conservator of forest prepared a scheme for planting one square mile (640 acres) of land with teak every year. According to the scheme, a time period of 10 years was fixed and the required site for planting for that fixed period was selected. But the scheme did not work well as the site selected in some of the divisions was not salubrious for teak growth.\textsuperscript{121}

Between 1042 and1065 ME, the average annual area planted was about 30 acres, as there was no systematic and regular planting during this period. Between 1066 - 1082 ME (AD 1890 - 1891 to 1906 - 1907), the average annual area planted was 108 acres. The government consequently decided to continue this rate of extension i.e., 108 acres per year, because of the realization that any more increase in the area of plantation will create great difficulties. With the present system, the yield from an acre of plantation was 4,500 cu ft. in the final crop. So the production over an area of 100 acres would yield 4,50,000 cu ft. which was a little over the quantity of teak then sold annually.\textsuperscript{122}

The planting of teak was a herculean task that the government had to undertake because teak in its growing stage required adequate care and attention. As already mentioned, the teak has a growth rest of three months every year, and it was necessary to protect the plant from the encroachment of other plants during this time. Timely weeding was necessary for its success and as it proved to be a great drain of money the authorities began to think of an alternative. This led to the idea of bringing teak plantations under the \textit{taungya} system.

\textsuperscript{120} Ibid.
\textsuperscript{121} T.K.Velu Pillai, \textit{op. cit.}, p. 257.
\textsuperscript{122} M.P. Jacob, \textit{op. cit.}
Table 2.2
Area under Teak Plantations in Different Regions from 1042 to 1082 ME (AD 1866 – 67 to 1906- 07)\textsuperscript{123}

<table>
<thead>
<tr>
<th>Year (ME)</th>
<th>Malayattur</th>
<th>Konni</th>
<th>Aryankavu</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1042-1049 (AD 1866 - 67 to 1873 -74)</td>
<td>119.66 acres</td>
<td>121.30 acres</td>
<td>-----------</td>
<td>240.96 acres</td>
</tr>
<tr>
<td>1054-1064 (AD 1878 - 79 to 1888 - 89)</td>
<td>-----------</td>
<td>454.30 acres</td>
<td>-----------</td>
<td>454.43 acres</td>
</tr>
<tr>
<td>1066-1082 (AD 1890 - 91 to 1906 -07)</td>
<td>631.76 acres</td>
<td>876.98 acres</td>
<td>336.38 acres</td>
<td>1845.12 acres</td>
</tr>
<tr>
<td>Total</td>
<td>751.42 acres</td>
<td>1452.71 acres</td>
<td>336.38 acres</td>
<td>2540.51 acres</td>
</tr>
</tbody>
</table>

The Taungya System

The taungya system consists of growing annual agricultural crops along with the forestry species during the early establishments of the forestry plantations. It can be termed as a predecessor of agro-forestry. The word Taungya is said to have originated in Myanmar (Burma) where it meant hill cultivation (\textit{taung} meaning hill and \textit{ya} meaning cultivation). Though it is a local term for shifting cultivation, that existed in the early years of forestry it was detrimental to the management of timber resources as the villagers began to encroach on the forest reserve. Realizing its danger, Dietrich Brandis the pioneer of Indian forestry who was in Burma for a time, encouraged the practice of “regeneration of teak with the assistance of taungya”. This was based on the well-known German system of Waldfeldbau which involved the cultivation of agricultural crops in the forests. Two decades later the system proved so efficient that teak plantations were established at a very low cost. Later this was introduced into other parts of British India.\textsuperscript{124}

\textsuperscript{123} N.N. Menon, op. cit., p. 43.
The *taungya* system was originally an agreement between the Forest Department and the farmer. The land given for *taungya* belonged to the Forest Department, who allowed the subsistence farmers to raise their crops on the land. The farmers are required to tend the forestry seedlings and in return, retain a part or all of the agricultural produce. This agreement would last for two or three years, during which time the forestry species would grow and expand its canopy. Usually during this period the soil fertility declines, making the crop production non-remunerative. The administrative report states thus:

“Under the system as soon as the tree growth is removed from the area, the land is leased out to contractors who clear the area, burn the brushwood and sow paddy with the beginning of the monsoon. Teak plants are supplied to each contractor who plants them at his cost but under the control of the department at points already staked. After the paddy is harvested, the contractor raises a crop of gram or other cereals in the area and keeps the plantation completely weeded. Another paddy harvest is raised and the contractor delivers back the area fully weeded and with all failure replaced. The teak plants raised under this system show better growth while the government save the cost of weeding. This system not only reduces the cost of plantations enormously but it also increases the cultivation of food crops in the country”.

This system proved to be more advantageous to the Forest Department than the farmers. It was a prudent policy introduced by the colonial masters to generate teak in a less expensive method. The department had to spend huge amount for teak plantation in its initial stage i.e., for clearing the forest and for weeding during the initial years. With the introduction of *taungya*, there was no need for the department to clear the forests to cultivate teak. No timely weeding was required by the department for three or four years, which is a crucial period of teak growth. All these activities were done by the farmers at their cost thereby relieving the

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125 Ibid.
Forest Department from a huge burden.\textsuperscript{127} The department was benefitted not only by getting the expenditure reduced but also by incurring an amount of revenue as a small rental, say Rs. 2 ½ per acre during the period of agreement from the farmers.\textsuperscript{128} The \textit{taungya} system was introduced in several places. In some places it proved to be a failure due to the following reasons:\textsuperscript{129}

1) Unsuitability of the soil.

2) Difficulty in getting reliable contractors.

3) Difficulty in procuring labourers.

4) Adverse weather conditions and scantiness of rainfall.

The credit for introducing the \textit{taungya} system in Travancore goes to M. Velu Pillai, the Deputy Conservator, in charge of the Konni Division. The first attempt to introduce it was made in 1090 ME (AD 1914 - 1915) in the Konni Division.\textsuperscript{130} Here as a first step, 400 acres were opened but it proved to be a failure.\textsuperscript{131} In another government record we can observe that this system was first introduced in the state through G.O. No. R. Dis. 1179/21/Development, dated 18 October 1921.\textsuperscript{132} Again an attempt was made at Kadiyar with 110 acres and at Chengara with 97.50 acres under the system.\textsuperscript{133} The complete success this time led to the opening of another 120 acres at Kadiyar and 166.30 acres at Chengara.\textsuperscript{134} From that time onwards, all teak plantations in Konni Division were opened under this system. The factors that led to the success of this system in Konni were:\textsuperscript{135}

\textsuperscript{127} T.K. Velu Pillai, op. cit., p. 257.
\textsuperscript{128} Letter No. nil, dated 7/1/1926, from Conservator of Forest, Dhanukoti Pillai to the Chief Secretary to Government, Development File No. 902/26, op. cit.
\textsuperscript{129} T.K. Velu Pillai, op. cit., p. 257.
\textsuperscript{130} M. P. Jacob, op. cit., p. 5
\textsuperscript{131} Ibid.
\textsuperscript{132} Letter dated 7/1/1926, Development file No. 902/26, op. cit.
\textsuperscript{133} N.N. Menon, op. cit., p. 40.
\textsuperscript{134} Ibid.
\textsuperscript{135} M.P. Jacob, op. cit.
1) The suitability of the land for paddy and gram cultivation.

2) The existence of an agricultural population in the vicinity of the forest with an immemorial tradition of hill cultivation of paddy.

The first successful plantation under this system was the one started at Konni and its success encouraged the government to open more areas for plantations. Teak Plantations under *taungya* system was opened at Kalduruthy in Shencottah division in 1101 ME (AD 1925 - 1926)\(^{136}\) The area opened was 58 ½ acres. The opening of plantations under Taungya resulted in the reduction in the cost of planting and this gave an impetus to the planting of teak in the state.\(^{137}\) In 1059 ME (AD 1883 - 84) Messrs Wallibhoy Khaderbhoy & Co., met the Dewan during his visit to the Konni plantations and offered to purchase the plantations. But the Dewan declined remarking that the plantations were “a hoard of wealth to the government”.

After the introduction of this system the cost of opening teak plantation went down almost to nothing. This resulted in the extension of teak plantations up to 3,505 acres during 1097 - 1102 ME (AD 1921 - 1922 to 1926 - 1927) as compared to 1661 acres during the previous six years from 1091 to 1096 ME (AD 1915 - 1916 to 1920 - 1921).\(^{138}\) By the end of 1102 ME (AD 1926 - 1927) the total area of teak plantations in the state went up to 8,257 acres. This was a huge figure when compared to the Nilambur plantations which was at that time only 6,590 acres.\(^{139}\) H. Tireman, the Conservator of Forests in Madras who visited the state plantations in 1101 ME (AD 1925 - 1926) stated that the systems of planting and tending teak adopted here were better than those at Nilambur. Following his visit S. Brown, the Deputy Conservator of Forest in Madras was deputed from there to study the method of raising teak plantation under the *taungya*.\(^{140}\) Any how the result of raising plantations under the *taungya* system was a very encouraging one

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\(^{136}\) Letter No. nil, dated 7/6/1926, from the Conservator of Forests to the Chief Secretary to government Development File No. 1381/1926, B - 56

\(^{137}\) Ibid.

\(^{138}\) M.P. Jacob, op. cit., p. 6.

\(^{139}\) Ibid.

\(^{140}\) Ibid.
to the government and many cooperative societies were coming up for cultivation. In 1100 ME (AD 1924 - 1925), 12,000 paras of paddy were made available to the public and the cost of plantations was brought down to Rs. 1.92 per acre against Rs. 20.91 per acre in 1096 ME (AD 1920 - 1921).  

The success of teak plantations under the taungya system depended entirely on the timely execution of the works in proper seasons. The difficulty in the execution of this work was that the lessee had to get government sanction to start their work which always would be in delay. There were instances when the lessee failed to execute the agreement on the ground of late receipt of government sanction. So there was a suggestion from the Forest Department to empower the conservator to sanction the leases which does not exceed Rs. 2,000. According to them the conservator could sanction the leases of minor forest produce and sale of standing growth in coupes upto a limit of Rs. 2,000 as per Article 73 (c) of the forest code where as for the taungya lease they had to obtain government sanction even if the lease amount was less than Rs. 2,000. Their claim was accepted by the government and the conservator was empowered by the government to sanction leases for cereal cultivation under taungya system in all cases provided the lease amount does not exceed Rs. 2,000.

In the beginning of the year 1119 ME, (AD 1943 - 1944) the total area under teak plantation was 18,295 acres. In the same year an area of 684 acres was also planted which was lower than the previous year which was 856 acres. The total extent at the end of the year was 18,979 acres. The pre-monsoon method of planting was continued. This was found to yield good results both in the rate of growth and survival percentage. The total revenue realized from the plantations during the year was Rs. 2,77,492 against Rs. 90,619 in 1118 ME (AD 1942 -1943). The excellent prices obtained in auction sales and the enhanced tariff fixed for logs

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142 Letter dated 7/1/1926, Development File No. 902/26, op. cit
143 Letter No.1477, dated 03/05/1926, from the Palace, Trivandrum, Development File No. 902/26.
144 Administration Report of the Travancore Forest Department for the year 1119 ME, (AD 1943 - 44), Government Press, Trivandrum, 1916, P. 53
and saplings partly account for the abnormal increase. The revenue realized during the year from teak plantations is given below.\textsuperscript{145}

### Table 2.3

**Revenue realized during the year 1943 - 1944 from Teak plantations**

<table>
<thead>
<tr>
<th>Division</th>
<th>Details</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>Sales of logs and saplings</td>
<td>26,008</td>
</tr>
<tr>
<td>Kottayam</td>
<td>Sales of logs and saplings</td>
<td>5,339</td>
</tr>
<tr>
<td>Central</td>
<td>Sales of logs and saplings</td>
<td>1,51,851</td>
</tr>
<tr>
<td>Quilon</td>
<td>Sales of logs and saplings</td>
<td>94,294</td>
</tr>
<tr>
<td>Southern</td>
<td>Sales of logs and saplings</td>
<td>Nil</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>2,77,492</strong></td>
</tr>
</tbody>
</table>

#### Preparation of a Working Plan for Teak Plantation

The government decided to prepare a working plan, for the systematic and more regular working of timber from plantations. Conservator Munro, was credited to have introduced a sample of forest working plans for the first time in India. This was intended for the cutting of teak trees from natural forests. The fact that he raised the first working plan for the working of teak was evidenced by his estimate in 1837 that he would have 1,00,000 trees fit to cut in that season. Nowhere else in India at that time, or for long afterwards, could such a forecast have been made with any pretense at real accuracy. He pointed out the over exploitation of forest by the contractors in Malabar and Travancore. For example, Munro stated that a Parsee contractor had commenced devastating methods in some Travancore forest. This ruthless felling alarmed the necessity of conservation of forest.\textsuperscript{146}

Due to the realization of the value of teak plantations which could be corroborated with the statement of the Dewan, a separate working plan for all the

\textsuperscript{145} Ibid.

teak plantations in Travancore was drawn. The objectives of the plan which were self-explanatory were as follows:¹⁴⁷

1) To prepare a history of the plantations till date, showing their extent and the expenditure that has been incurred on them.

2) To estimate the present value of the plantations and the probable total return when the final crop has been harvested.

3) To discuss the method of treatment adopted hitherto and to suggest the proper future treatment.

4) To consider the question of further extension and to offer any suggestion about it.

The earliest working plan report for teak was the one prepared in 1908. This report was drawn up by the then Deputy Conservator V. K. Govinda Menon under the supervision of Bourdillion, who was the Conservator of Forest then. The time allowed to him was four months but he completed his work in 94 days. The other staffs who were appointed for assisting him were a Ranger who was a permanent staff, one Surveyor, two Clerks, two Peons, Six Lascars etc. who were all temporary staff. He started his work at Konni and then proceeded to Malayattur and Aryankavu. In this report he gave in detail the extension of each plantation, its expenditure and its financial forecast.

Teak cultivation includes planting, weeding, pruning, and thinning. From time to time Bourdillion issued circulars and instructions on the system of planting to guide the officers employed for the purpose. They included:¹⁴⁸

1) Memorandum on pruning and thinning
2) Scheme of thinning
3) Suggestions for opening and maintenance of plantations.

The total area of plantation at the end of 1082 ME (AD 1906 - 1907) was 2,540.51 acres. From there onwards systematic planting continued without any interruption. Plantations at Konni and Aryankavu continued to thrive. New

¹⁴⁷ M. P. Jacob, op. cit.
¹⁴⁸ Ibid.
plantations were started at Edaman in Quilon and Mallana on the banks of the Mallana Thode. Thus by the end of 1094 ME (1918 - 1919), the total area of teak plantations in the state was about 4,083 acres.\(^{149}\)

**Appointing Officers in Teak Plantations**

Suggestions were made for the appointment of officers in teak plantations for paying greater attention to the management and extension of plantations in the state. In 1925, the Conservator of Forests strongly recommended the appointment of permanent officers in teak plantations on the basis of merit.\(^{150}\) According to him, a few men of good enthusiasm and experience along with their capacity were to be selected from the present staff. They were to be allowed to work at one place for a long time and be provided with basic amenities of life such as schools, hospitals, societies etc. He also proposed to pay a local allowance of 35% of pay to the officers placed in charge of plantations.\(^{151}\)

The opening of the teak plantations, up to the year 1096 ME (1920 - 1921), was done solely at the expense of the government. However, with the introduction of the *taungya* system it was undertaken at a little cost to the government, as all the work up to the time when the teak plantations were eighteen months old were carried out by the *taungya* cultivators. Under this system, there was a marked increase in the area of teak plantations in the state. This phenomenal increase in the areas yearly opened for teak plantations, however, brought in its wake, problems which required careful considerations. It necessitated a demand for appointing separate officers in these plantations.

Govinda Menon who was entrusted with the task of compiling the first working plan for teak plantations in the state remarked that for the effective management of the plantations, “the whole planting operations should be left entirely in the hands of a responsible Controlling Officer.”\(^{152}\) The plantations at that time were placed under the Divisional Forest Officer who hardly had any time

\(^{149}\) T.K.Velu Pillai, op. cit., pp. 256 - 257.

\(^{150}\) Letter No. 2985/25, dated 13/10/1100 ME (AD 26/05/1925) from the Conservator of Forests, to the Chief Secretary to Government, Sub: Posting of officers for Plantations.

\(^{151}\) Ibid.

\(^{152}\) V.K. Govinda Menon, op.cit.
to look into the affairs of the plantations amidst his multifaceted duties.\footnote{M. P. Jacob, op. cit., p. 19} The Conservator in his report to the government pointed out that there were officers with special responsibility for the plantations at Nilambur and Cochin. He also pointed out that Thomas who was deputed from Nilambur for plantation duties was now entrusted with so many other duties, which in turn led to the inefficient management of the plantations.\footnote{Ibid.}

At the request of the Forest Department, Her Highness the Maharani Regent sanctioned the grant of a fixed local allowance of Rs. 30 each per month to three officers placed in charge of the three teak plantations at Malayattur, Konni and Aryankavu.\footnote{Letter No.nil, dated 15/09/1926, from the Palace Trivandrum, Development File No. 1731/1926, B - 57} Later it was decided that the officers working in the plantations should be better paid than a Forest Ranger. Taking into account the nature of their work and the condition of life they led in the plantations the allowance was suggested to be increased from Rs. 30 to Rs. 50 per month.\footnote{M. P. Jacob, op. cit., p. 21.} The most important work in the teak plantations was that of the thinning of the trees. Timely thinning was the secret to a healthy plantation. Besides this, other important works were the selection of a suitable place, revision of the taungya rules according to the need of the time, comparative study of the conditions in different localities and the arrangement of the trees according to the requirements in each place.\footnote{Ibid.}

Thus, we can observe the evolution of a definite policy for plantations in the state. Strong arguments were made, in the different working plan reports of teak plantations, in favour of their effective management. The report and working scheme for Travancore Teak Plantations prepared by M.P. Jacob strongly recommended for the appointment of permanent staff. He pointed out that at the Konni plantation which was the biggest in the state, about fifteen officers had held charge within a period of six years. He also argued that selection of a Planting Officer should be strictly based on merit. He proposed the grouping arrangement of
the plantations, and suggested the number of officers in each plantation group. The number of officers suggested was according to the size of the plantations.\textsuperscript{158}

He also pointed out that although Konni once constituted a separate division from 1092 - 1094 ME (AD 1916 - 1917 to 1918 - 1919), it was changed due to certain technical problems such as the difficulty incurred in communication between the plantations and other forest offices. Later however, as the communication facilities improved, he strongly suggested the formation of separate divisions for the better management of all the teak plantations in the state.\textsuperscript{159}

\textbf{Prohibition of Shooting and Hunting Within Teak Plantations}

The Forest Department encountered several problems from encroachers of the hills. They indiscriminately destroyed the teak plantations while hunting and fishing. During fishing they often lit fires to cook their fish which eventually spread into the plantations causing large-scale destruction. Hunters often passed through the plantations in great numbers accompanied by dogs destroying small plants on their way. As a result the Conservator made suggestions to the government for passing rules to protect the teak plantations. These were approved by the government.\textsuperscript{160}

Under Section 22 clause $f$ and section 33, clause 12 of Regulation II of 1068 ME (AD 1892 - 1893), the following rules were passed.

1) All unauthorized hunting, shooting and fishing within the teak plantations of Malayattur, Konni, and Aryankavu were prohibited from 1 Chingam 1074 ME, (1898) except with the permission of the forest officer in charge of the plantation.

2) Section 22 clause $f$ of the Forest regulations empowered the Dewan to make rules to limit shooting in the reserved forest and section 33 clause 12,\textsuperscript{158} Ibid, p. 20.\textsuperscript{159} Ibid.\textsuperscript{160} Letter No. nil, dated nil, from the Conservator, Cover File (1728 - 1903) No. 12328/1898, B - 241.
empowered the Dewan to make rules generally for the protection of forest.\textsuperscript{161}

A revised working scheme of the teak plantations in the state was prepared by M.P. Jacob, who was the Deputy Conservator of Forest during the conservatorship of Dhanukoti Pillai.

**Experiment with All-India Teak Seeds**

In the 1930s an all-India teak seeds experiment was conducted and Travancore participated in the scheme to test the importance of seed origin in raising plantations. Seeds from different regions like Burma, Nilambur, Canara, Ranni, and Shencottah were collected.\textsuperscript{162} They were for the first time experimented in Konni and Kottayam in 1931. The area selected for the plantations had the same soil conditions and rainfall.\textsuperscript{163} After two years the analysis of the crops showed that in the Kottayam Division the area planted with Burma teak yielded satisfactory result. In the Central Division, except for the plots planted with Canara seeds, all others remained in good condition. It was observed that the best growth in Travancore was of local seeds, followed by that of Nilambur and that of Canara came last.\textsuperscript{164}

In 1118 ME (AD 1942 - 43), three-fourth acre of the 1108 (AD 1932 - 1933) Velur coupe X, half acre of 1109 (AD 1933 - 1934) coupe X and a quarter acre of 1110 (AD 1934 - 1935) coupe VIII were thriving with Burma teak. All these coupes were in the Kottayam Division. In the Central Division also, the plots with Burma, Nilambur, Shencottah, and local seeds were coming up well.\textsuperscript{165}

\begin{footnotesize}
\begin{itemize}
  \item \textsuperscript{161} Ibid.
  \item \textsuperscript{162} Report on the Administration of the Travancore Forest Department for the Year 1114 ME, ending on 16\textsuperscript{th} August, 1939, Government Press, Trivandrum, p. 27.
  \item \textsuperscript{163} Ibid.
  \item \textsuperscript{164} T.F. Bourdillion, op. cit., p. 164.
  \item \textsuperscript{165} Report on the Administration of the Travancore Forest Department for the year 1118 ME, ending with 16\textsuperscript{th} August 1943, Government Press, Trivandrum, 1944, p. 22.
\end{itemize}
\end{footnotesize}
Injuries to Teak Plantations

Floods

The floods caused serious destruction in most of the plantations, often resulting in damaging trees by uprooting them or destroying them by water logging.\textsuperscript{166} The June 1882 flood in Travancore had very serious repercussions in the northern parts. The Forest Department incurred heavy loss as the flood swept away thousands of logs. Besides, it adversely affected the teak plantations which had just been started at Konniyoor. Extensive planting had been done during the year aggregating to an area of more than 200 acres but the work suffered much due to the extraordinary floods.\textsuperscript{167} A rough estimate shows that about 7,50,000 out of 9,00,000 plants planted that year were destroyed.\textsuperscript{168} The floods of 1060 ME (AD 1884 - 85) destroyed many plants in the Kondodi area of Konni plantations. This area which was first planted in 1057 ME (AD 1881 - 1882), was replanted in 1064 ME (AD 1888 - 89) and was then on known as Little Kondodi (see fig 2.6) with 35 acres.\textsuperscript{169} The floods of 1099 ME (AD 1923 - 1924) also incurred a great damage to the plantations. A landslide on the western slope of the plantation started in 1098 ME (AD 1922 - 1923) in the Shencottah Division destroyed all the plants over an area of 10 cents and large numbers of trees were broken owing to the heavy gale. In the Northern Division also, great damage was caused to the plantations by the heavy floods.\textsuperscript{170} At the Malayattur plantations, thousands of trees were uprooted and 10,000 trees were destroyed by water logging.\textsuperscript{171}

\textsuperscript{166} M.P. Jacob, op. cit., p. 10.
\textsuperscript{167} Ibid.
\textsuperscript{168} Report on the Administration of the Travancore Forest Department, 1114 ME, op. cit.
\textsuperscript{169} M. P. Jacob, op. cit., p. 3.
\textsuperscript{170} Administration Report of the Forest Department of Travancore for the year 1099 ME (AD 1923 - 1924), Government Press, Trivandrum, 1925, pp. 35 - 36.
\textsuperscript{171} M.P. Jacob, op. cit.
Fig. 2.6

Sketch showing Little Kondodi Plantation Coupe, Konni Division Year 1064 (1888-1889)

Source: Divisional Forest Office, Konni

Teak Defoliators

Teak defoliators were one of the major pest threats to the teak plantations. The intensity of the attack of defoliators varied from year to year and from place to place, and all teak plantations suffer to a greater or lesser degree every year from defoliation.\textsuperscript{172} The frequent injuries made by these defoliators to the valuable teak

\textsuperscript{172} Ibid.
plantations invited the serious attention of the government. As a result of the endeavoring discussions at the government level, they decided to set up an entomological branch for controlling the defoliators. S.K. Pillai was appointed the first Forest Entomologist.173

**Other Plantations**

*Elavu Plantations*

In 1107 ME (AD 1931 - 1932), an experimental *elavu* plantation on 19 acres at Tattakadu in the Northern Division was initiated under the *taungya* system. It was started with the objective of providing a regular supply of softwood for the Malabar Match Manufacturing Company.174 In 1112 ME (AD 1936 - 1937) an area of ten acres of *elavu* plantation was newly opened at Neriamangalam (See fig.2.7) in the Northern Division under the *taungya* system. During the year a large number of seedlings were destroyed by crickets.175 A nursery for *elavu* seeds were opened at Oyur to make up for the lost crop. About six acres of land were planted with *elavu* under the *taungya* system in the Central Division. The initial cost for the same was nil. However, some plants were destroyed due to the floods that occurred at the end of the year.176 In 1114 (AD 1938 - 1939) about 5 acres of forest on the side of the Vadasserikkara - Chittar road was clear felled and planted with Elavu. The total extend of Elavu plantations opened in the Konni Division from 1114 to 1117 (AD 1938 - 1939 to 1941 - 1942) were 18 acres.177 The total area of *elavu* plantations at the end of 1118 ME (AD 1942 - 43) was 84.1 acres. The important *elavu* plantations were at Neriamangalam, Chengara, and Naduvathumuzhi.178

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177 N.N. Menon, op. cit., p. 61.
178 Report of the Administration of the Travancore Forest Department, 1118 ME op. cit., p. 19.
Red Gum Plantations

The Red Gum plantation was opened in the Azhutha Fuel Reserve in Peermade in an area of 5 acres in the year 1105 ME (AD 1929 - 1930) and was extended by another 10 acres in the next year. Cultural operations were carried out as in the past. In the year 1116 ME (AD 1940 - 1941) certain areas of red gum
plantations which were under the charge of the Peermade Game Warden were handed over to the department, the area amounted to about 11.75 acres. The total area of plantation this year was 56.76 acres. At Pallivasal and Peermade, 17 acres were planted with Red Gum. It was planted at a cost of Rs. 209. The total acreage at the end of 1118 ME was 88.75.

**Cinchona Plantations**

With the failure of coffee plantations European planters took up the cultivation of Cinchona which grows fairly in Travancore at a height above 2500 ft. In the initial stages the returns from Cinchona Plantations were not satisfactory. As an experiment they were planted in the Ashamboo Hills. About 10 varieties of Cinchona plants were cultivated on 20 acres. Around 1906 - 1907, 55 acres of plantations were abandoned in Lockhart and Kolamankai estates. However, six acres were started in the Staple Grove estate during the same year. In the Fairfield estate, there were 1500 plants on 5 acres. But there was no turnout during this year. In 1118 ME (AD 1942 - 1943) Cinchona seeds were obtained from Ootacamund Cinchona Department and sown in nurseries opened at Peermade. They were planted at a cost of Rs. 352. Among them about 80% of the seeds germinated and the seedlings were in a healthy condition.

**Jungle wood Plantations**

In 1114 ME (AD 1938 - 39) mixed jungle woods were planted at Velur and they were in good condition. In the Northern Division, 31.5 acres were planted with *anjili*, *vengai*, mahogany, *elavu*, *thembavu*, *perumaram*, venteak in 1118 ME (AD 1942 - 1943). In the previous year twenty acres were opened experimentally at Paneli (See fig.2.8). In the Quilon Division forty acres in block IV of the Aryanallor reserve were planted with *vengai*, venteak, *thembavu*, *anjili*, *vengai*, *thembavu*, *elavu*, *perumaram*.  

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179 Ibid.
180 Ibid.
181 T.F. Bourdillion, op. cit., p. 4.
182 Statements of Cinchona Returns, Forest File No. 122/1907, B - 5.
183 Letter No. nil, dated 21/05/1907, from the Kannan Devan Planters Association to the Chief Secretary to the Government, Forest File No. 122/1907, B - 5.
184 Report on the Administration of Travancore Forest Department, 1116 ME, op. cit., p. 27.
kumbil, pala, and other softwood.185 In Konni Division this plantation was opened in 1118 ME with an area of 26 acres. They were planted under the Taungya system together with teak, blackwood and other superior jungle wood species.186

Fig. 2.8
Sketch showing Jungle Wood Plantation at Paneli, 1117 – 1118 ME
(1941-1942, 1942-1943)

Pyrethrum Plantations

This is a very important plant insecticide, which was first discovered in Persia and later introduced into Europe in the nineteenth century.187 It was cultivated as part of anti-malarial operations.188 In India Pyrethrum was first used for malaria control in Delhi. The Rock feller Foundation began using Pyrethrum

185 Report on the Administration of the Travancore Forest Department, 1118 ME, op. cit.
186 N.N. Menon, op. cit., p. 61.
188 Ibid., p. 8.
sprays experimentally in India, leading to a great success. Experimental cultivation was first undertaken in Kashmir and in the Nilghiris in the early years of World War II. As the result was very promising the area under cultivation was extended to other places like Travancore, Kulu, Palmpur, Mayurbhanj, Kumaon, Assam, Mysore and Kodaikanal. The ensuing result was very encouraging.

In Travancore one acre of Pyrethrum was opened at Peermade, as part of an experiment. The success here encouraged the government which resulted in cultivating pyrethrum on a large scale. The plants flowered and the flowers were sent for chemical analysis.

Though heavy floods caused damage to the Peermade plantations, 68 plants were saved and replanted in the Valanjankanam reserve. The grasslands in Pampadanshola reserve which are at an elevation of 6,000 ft. was considered as the most suitable place for growing pyrethrum. Here, a nursery of two acres was opened. The seedlings obtained were planted in 25 acres during 1119 ME (AD 1943 - 1944).

**Pithecolobium dulce Plantations**

The sowing of Pithecolobium dulce was done with the aim of afforesting the bank areas of the minor reserve forests. One of the most important features of this tree was that it was a fast grower and an excellent fuel resource. They were dibbled either mixed with cashew or under taungya. 45 acres were opened in the Southern Division and 20 acres in the Quilon Division. An extend of 244 acres of mixed plantations of Cashew and Pithecolobium was opened in the Southern Division and 14 acres in the Quilon Division. The seeds of the *Pithecolobium* were purchased from Salem. This is also known as Manila Tamarind.

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191 Report on the Administration of Travancore Forest Department for the year 1118 ME, op. cit., p. 22.
192 Report on the Administration of Travancore Forest Department for the year 1119 ME (1943 – 1944), Government Press, Trivandrum, 1945, p. 22
193 Report of the Administration of Travancore Forest Department for the Year 1118 ME, op. cit., p. 23
194 Ibid.
Roads for the Plantations

The success of a plantation relied heavily on the continuous inspection and meticulous supervision of the trees by the responsible officers. To conduct these operations in the plantations, adequate camping facilities and a good system of paths and roads were essential. Therefore, the opening of forests for cart roads and the construction of necessary buildings became one of the most important policies of the government. In the words of M.P. Jacob: “when plantations are extended in any new direction, the lines along which cart roads are to be taken must be settled and the roads traced at the very outset so that inspection paths may first be opened and the same gradually widened into cart roads.”

Conclusion

The timber plantations in Travancore can be rightly considered as a path to commercial forestry. As the natural forests were exhausted of valuable timbers due to indiscriminate fellings, it necessitated the artificial regeneration of trees. The major timber plantation was teak which was the most priced timber in the market. This chapter gives a clear evidence of scientific forestry giving way to commercial forestry. One of the aims of scientific forestry itself was the exploration of teak and other valuable timbers and also to ensure a regular supply of these timbers for several purposes. This objective was rightly fulfilled through the starting of plantations. Thus, plantations were definitely a part of commercial forestry under the guise of scientific forestry, the aim of which was the systematic and regular supply of timber for industrial purposes. When there arose a great demand for soft woods following the First World War, soft wood plantations were also started in Travancore.

Timber plantations were initiated in Travancore due to the excessive fellings of the eighteenth century. When the administrators felt that there was a shortage of adequate supply of commercial timbers in Travancore forests, they thought of planting firstly teak trees on Malabar model and later on moved to the plantation of other trees. The teak plantations of Travancore attracted the attention

195 M.P. Jacob, op. cit., p. 22.
196 Ibid.
of business enterprises, as evident from the willingness of Wallibhoy Company for the purchase of teak plantations. Its commercial value can be assessed from the reply of the Dewan to the company stating that the government was not ready to sell the plantations as they were a treasure of wealth to the government.

Maintenance of timber plantations however, proved to be a herculean task to the government. This was mainly because the climatic and soil conditions were not the same for all trees. The initial failure of plantations led to proper geological and climatic researches for finding the soil and climate that suited each tree species. Following this, large scale plantations were opened in Travancore. The introduction of the taungya system was another important factor for the success of plantation enterprise in Travancore. This helped the government to open plantations at minimal cost.

The success of teak plantations encouraged the government to bring more area under plantations which in turn required systematic care and calculations. Thus the features of scientific forestry began to creep into the plantations in the form of working plans, appointment of separate officers for plantations, training of officers for working in the plantations etc. The first working plan for the teak plantations was prepared in 1908 by V.K. Govinda Menon under the supervision of Bourdillion, who is considered the Father of scientific forestry in Travancore. Thus, the introduction of scientific forestry in plantations was to ensure increased yield from the plantations in a regular and systematic manner. Definite policy legislations were introduced in the plantation sites. The opening of communication systems in the inaccessible parts of the plantation became an important policy aspect of the government. Hill settlers were however, alienated from plantations through rules and proclamations. High yielding teak seeds were experimented on a large scale in Travancore. Softwood and jungle wood plantations were also introduced after the First World War. These large-scale transformations of the ecological and social landscape proved that the initiation of timber plantations in Travancore was a definite pathway to commercial forestry.