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Value of Forests in the Country

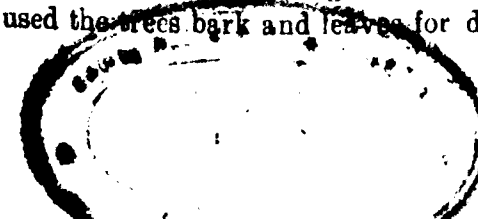
BY V. N. SHARANGAPANI,

Junior Division, Madras Forest College,

[This essay was adjudged the best of those sent by junior students of the Madras Forest College, in response to an offer of a prize by Mr. A. A. F. Minchin, I F S., Conservator of Forests, II Circle, Madras. It represents the material for a lecture to a class of young people of secondary school age, say 14 to 16.]

Thou little and young generation of our future hope, I have got a golden opportunity to-day of speaking to you on a subject in which I am much interested. Before proceeding a few words on the subject, let me give you an idea of what a forest is.

At one time or another the greater part of the dry earth was covered with forests, which consisted of a variety of trees and shrubs grouped according to the climate, soil and general shape of the ground. Naturally when the old trees reached their limit of life, they disappeared and other trees and shrubs grew in place of them. Then came man and interfered and to begin with in civilized countries man used the trees bark and leaves for domestic purposes, and



this considerably reduced the forest. So long as forests occupied considerable areas their produce was considered "the free gift of nature" like air and water. Man took the produce, used it and destroyed it. Gradually he extended his hand and ideas of ownership developed. As time went on he proceeded to protect the produce which these forests yielded to him against outsiders. Forests rose in value, and it was necessary to devise a system for readily ascertaining their value.

This in short is the history of a forest. Now let me leave this aside for the time being and speak something on the subject in hand. The value of forests in the economy of man and of nature falls materially into two classes, (a) direct (b) indirect. The former through their produce and the latter through the influence they exercise on the climate, soil and the general healthiness of a country.

The former we will consider for the present. A question comes: Is the existence of forest necessary in the interest of a country and its inhabitants? You know how extensively wood is used. Your chairs, tables, boxes and so many things are made of wood. For the construction of your school wood was required. The villagers' huts in the villages cannot be constructed without wood. Their agricultural and industrial implements are made entirely of wood. Wood is the cheapest form of fuel for cooking food. It must therefore be admitted that wood is necessary in every country and in order that it may be available at price within the means of poor classes, it must be grown within a short distance of the towns and villages in which it is utilized. Now-a-days as you see iron and other materials have to a considerable extent replaced timber, but at the same time new industries which use wood, such as the preparation of wood pulp for the manufacture of paper have come in. Fire wood is converted into charcoal

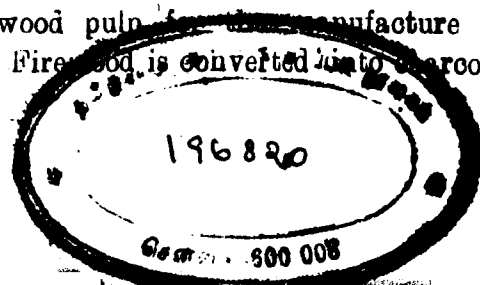
or ash. As you all know a considerable quantity of charcoal are still used for domestic firing, iron smelting, in the manufacture of gun powder and for a variety of other purposes. Ash got from firewood is used for the manufacture of potash or as manure used so extensively in fields. The use of wood is made from match-making to shipbuilding.

All the other produce which is not timber or firewood comes under the head of "Minor Forest produce." The minor forest produce which the forest yields is used for a variety of purposes. The bark of the trees is used for tanning, for the extraction of turpentine and numerous other dye stuffs. Grass, leaves and moss play an important part in farming in villages. The gum extracted from trees is widely used. Fruits and flowers of trees are used in medicine; out of the fibre of trees rope is made. Honey which you never lose sight of in your homes is used for medicinal purposes; out of wax candle sticks are made. Besides this, forests furnish raw material for extensive industries.

Forests serve as an object of industry in a country. Forest works such as the extraction of timber, offer an excellent opportunity to the rural labour or a small farmer in a village for earning some money when he has nothing else to do.

I have dealt with briefly with the direct uses of forests. Imagine a piece of land covered with dense crop of forest vegetation. It enjoys the benefit of certain agencies which modify the effects of sun and wind on the soil and adjoining layers of air. I won't go into details as to how these agencies affect the climate, rainfall and the regulation of moisture. It has been observed from ancient times down to the present, in which forest vegetation has affected the climate, rainfall and the general healthiness of a country.

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Forest growth has a moderating influence on the temperature of a locality. The mean annual temperature is lower in the forest than outside it. This is due to the mechanical obstructions which the forests offer to the influence of the sun and wind. These forests have a moderating effect on the climate of a country. Apart from this forests are maintained quite apart for other purposes. Forests tend to increase the local rainfall. I do not want to explain here as to how they increase the rainfall. You must have read in your geography books that at certain places, which are covered with dense forests, the rainfall there is great. The annual rainfall for example at Cherapunji is about six-hundred inches. The protection of soil is done by forests. If rain falls on a bare ground, it will naturally tend to rush off, carry away the loose soil erode the hill sides and cut deep valleys, there. If on the other hand it is covered with a dense forest crop the rain will fall first on the crowns of the trees and then it will drop slowly down. The vegetation underneath, the leaves and branches of trees prevent the rapid flow of water; then the water slowly goes down the surface of the soil until it finds its way slowly down to the underground springs and streams. Thus forests influence the feeding of springs and streams. Such small streams form into a river and river carries in its course enormous amount of silt and mud and transport it to other parts and make the soil there rich. The fertility of the Nile valley is due to the silt brought down by that river and deposited along its lower course. Hence the Egyptians called Egypt "the Gift of the Nile." Again the steady flow, the river is very essential in the use of water for the development of mechanical power.

Thus we have considered now a land where there are no forests and little or no vegetation. Cutting of forests brings about the disappearance of springs and formation of

deserts. The once fertile land of Turkestan was transformed into a desert by the extinction of its forests.

Apart from their beneficial reactions on the climate of a country, forests exercise a considerable influence on Hygiene. It is observed that a Eucalyptus tree has the power to exhaust the surplus water from a quarter of an acre of marsh, and thus preventing the breeding of mosquitoes.

Forests have their spiritual influence as well. Their appeal to the sense of the beautiful and to the mind. There is beauty in landscape provided with forest growth. It is better to live in a beautiful and picturesque land than an ugly one. Who will deny a healthy and nice surrounding? Places like Darjiling, Simla, Ootacamund attract visitors. These places are the charm of beauty spots. Thousands flock there in the holiday seasons to refresh their minds and bodies, cramped by their residence within city walls, into the graceful wood nearby. This is the aesthetical value of forests bringing wealth as well as spiritualism to the inhabitants.

A Study of Silviculture in Nilambur.

The present study is concerned with the Conolly Teak Plantations in Nilambur, which was started by Mr. Conolly, Collector of Malabar, as far back as 1843, thirteen years before the formation of a Forest Department in the Madras Presidency. Action in the line of artificial regeneration by that time was necessitated by considerable demand for Teak by the Bombay Naval Ship-building Yards and Gun-carriage Factory.

From 1843 onwards, year after year, plantations have been on formation. Practically all age-classes, with a few exceptions of failure for some reason or other, are represented from 1—86 years. The final fellings for old plant-

ations commenced in 1916; from 1917 onwards Teak planting have been undertaken on the sites from which the first rotation crop have been removed. So, the first rotation crop was about 73 years old when removed and the oldest of the second rotation crop is now 13 years old. During the two periods i. e., the periods for the first rotation crop and the 13 years of the 2nd rotation crop, many phenomena of silvicultural interest and many difficulties for successful formation of crop have been revealed and encountered. It is the object of this article to show how these phenomena bear on the silvicultural study of Teak plantation beginning from the selection of site and formation of crop up to the final removal, of clear-cutting system in Nilambur and what has been and is being done to overcome the difficulties.

The Nilambur Valley consists of three types of forests namely (1) the evergreen forests of the Ghats (2) the Semideciduous forests of the foot-hills (3) and the Semideciduous forests of the plains. It is out of the third type of forest that the plantations have been created. The original forest in this region consists mainly of *Xylia xylocarpa*, *Terminalia paniculata*, *Terminalia tomentosa*, *Dalbergia latifolia*, *Lagerstroemia microcarpa*, *Lagerstroemia Flos Reginae*, *Tetrameles nudiflora* and *Bambusa auriculata*.

Selection site for planting.—As a rule low lying inundated lands were and are avoided for planting. Similarly marshy and laterite soils have been found to be quite unsuitable for planting. Likewise, it has been recognised that alluvial soil of whatever depth is unsuitable for Teak unless properly drained. As to laterite soils the insufficient depth and the nearness of laterite rocks to the surface are held responsible for failure. In the latter case, the soil becomes so shallow and so coarse that it cannot retain

moisture for the growth of the Teak plants after a few years. This phenomenon was quite corroborated by the failure of Teak in some plantations of which we made analysis of soil by digging pits.

As regards the earlier plantations the sites were selected often along the banks of the rivers that flow through the valley. These banks which are generally higher than the neighbouring lands consist of well-drained alluvium soil. The very best growth is found along the banks, or in patches ranging from a few trees up to 2—3 acres. From this it should not be concluded that proximity to river bed is a criterion for good growth; but it has been found that it is the optimum depth of river alluvium which is the determining factor for good growth. If the depth of alluvium be much greater than the optimum, the Teak roots do not reach the moist layers of the soil directly above the main water level; on the other hand if the depth be too far below the optimum, the soil is saturated with water for several months in the growing season. So, the depth below the surface, of water level during the months succeeding the monsoon, is the main factor affecting the growth.

An important point to be remembered in connection with selection of site is that there is a great difference between the afforestation of a land which has not recently supported a true crop and that from which a tree crop has been recently removed.

Preparation of site for planting.—The selected site is clear felled and after removal of the utilizable timbers, the debris is burnt as late in the hot weather as practicable in order to produce a fierce fire. The fiercer a fire the less weeds shall have to be contended with, the cheaper will be the cost of weeding and the better the resultant growth. The better result may be ascribed to the following causes.

(a) a great quantity of mineral ash returns to the soil
 (b) complete oxidation, particularly of acids in the soil
 (c) thorough aeration of the upper layers of the soil and (d) complete destruction of roots and seeds of weeds. To effect a fierce fire is easy in the case of clearance of natural forests where debris is abundant, but in the case of raising a crop on an area from which the first rotation crop has been removed there is very little underwood, undergrowth or waste material from Teak trees to provide sufficient food for the fire.

Nursery treatment.—The first attempt to form plantation consisted in sowing Teak seeds and transplanting natural seedlings. But it proved unsuccessful. Next attempt was made with seeds previously treated. The third and the successful method was the raising of seedlings in nursery bed by soaking the seeds in cold water for 24 hours before sowing. The seeds were piled in a small heap, covered with straw and watered daily for three days, after which they were removed and sown an inch apart in nursery bed, ready prepared. This method was followed up to 1863. A slight modification was effected subsequently and the present method which runs as follows is nothing but an evolution of this method only. The seeds are soaked in cold water for 48 hours before sowing. They are spread over the bed touching one another and covered with finely powdered soil to a depth equal to the thickness of the seeds. The beds are then covered with twigs of *Phyllanthus emblica* or similar twigs and finally with a layer of straw. The beds are watered daily except on rainy days and the straw is removed on the sign of germination.

The nursery bed need not be more than one foot deep; but cracks should be made in the lower layers of soil to ensure drainage and the beds should be raised above ground level.

Espacement of Planting.—The espacement for planting was in square spacing $6\frac{1}{2}' \times 6\frac{1}{2}'$ up to 1885. Then a spacing of $6' \times 6'$ was followed up to 1904. Next, on various grounds, spacing of $9' \times 9'$ and $8' \times 8'$ were tried up to 1927. The present spacing is $6' \times 6'$ and is supposed to be the best one for Teak, as experienced in the past. Generally, the closer the spacing the sooner the canopy closes and less likely is the weeding to be necessary. Although close spacing saves money in weeding, the initial cost of fotation is more. Moreover it needs earlier thinning and where there is no demand for the thinned material, the cost becomes more.

Planting.—With a little modification the method of planting is the same in the present as was in the past. One foot cube pits were dug and the ground round it was hoed up after ensuring proper depth and exposing the soil for some time the earth was replaced. At present it has been found after experiment that equally good results can be obtained by loosening the soil in a square of at least one foot by pick-axe. In the past planting was carried out during the first burst of the south west monsoon; but it has been found that the first rains of the monsoon is weaker and of shorter duration being followed by a longer dry period—causing a greater number of casualties and also with slight deterioration of quality of those that survive. The case is otherwise at a little later stage in the rainy season.

Small vigorous seedlings which just begin to send out a new pair of leaves give the best result and large thin plants with weedy stem give the poorest result. Planting should always be started in a rainy days after each break in monsoon casualties are to be replaced. If for inevitable cause planting has got to be carried out in rather dry weather, dipping of the roots in liquid manure is helpful.

Formation of crop, by sowing seeds, after treatment in some solution and then dumping, is now under research operation. If better results are obtained, sowing will become the main method.

Preliminary tending for proper establishment of the crop.—These operations vary to some extent according as to whether the plantation is on a new site or on the site of clear felling old Teak plantation.

Weeding.—In the earliest plantations the weeds were cleared for two feet around each plant together with hoeing up of the ground to the same extent. In the 1st year generally 3—4 weedings were carried out. At present 2 weedings are done in the 1st year. The 1st weeding is done during the monsoon, before the weeds fruit, in July or early August. It is done in strips, four feet wide, 2 feet on either side of the rows of plants and absolutely clean weeded. The 2nd weeding is done in September just when the monsoon ends. In 2nd rotation of Teak this 2nd weeding is combined with soil aeration over the whole area in order to stimulate early growth. In all the weeding operations, special efforts are now made to retain as much as possible of the natural regeneration and regrowth of miscellaneous tree species. That neglect of weeding in the 1st year results in the utter failure of a plantation has been illustrated in more than one case.

Weeding from second year onwards:—In the earliest times weedings were carried out wherever necessary. Then up to 1915 four weedings were prescribed in the 2nd year, three for the next three years and 2 for the 6th year. Many of these were found unnecessary. The weeding in the 4th, 5th and 6th years are identical with cleaning of the present time. At present, in the case of proper execution of 1st year's weeding one weeding on the 1st class soil and 2 or 3 on other soils are required in the 2nd year,

while in the 3rd year, weedings are required on poor soils. The 2nd year's weeding is accompanied by thorough soil working in April or May i. e. at the commencement of the growing season.

Pruning.—This operation consisted, in the past of the removal of deformed stems in plantations up to 20 or 30 years. But subsequently it gradually became confined to younger plantations. In recent plantations, it has been found that the best time to carry out the pruning necessary is at the beginning of the 2nd year. This early pruning before the formation of heart wood facilitates easy cutting quick healing of wounds and quick straightening of the shoot, often without leaving any pruning mark. In April or May of the 2nd year all forked stems and side branches are carefully pruned, absolutely, flush with the main stem. Damaged stems (e. g. such as are sometimes broken by monkeys) are also cut back, with a clean cut, at ground level. Any regrowth or regeneration of the species or woody shrubs found interfering with the young Teak, are also cut in the course of pruning.

Climber cutting, parasite clearing, bamboo cutting and harvesting dead trees:—Climbers are generally cut on the trees that are left in the year in which a plantation is thinned. Parasitised branches are also cut by this time. The practice of these two operations commenced by 1867. The parasitised branches are collected and burnt but it is believed that burning is unnecessary. In plantations which have passed the age of thinning these operations are carried out whenever needed. In young plantations, bamboo found interfering or threatening the teak, are cut down. The present working plan has tabulated some programme for these tending operations; but if it is found to be insufficient to cope with the injurious influences the D. F. O. is at liberty to undertake such intermediate operations as are necessary.

Preliminary thinning.—This operation is confined to plantations on sites of old clear-felled Teak, among the natural regeneration that comes up in irregular distribution. Thickets of natural seedlings here and there which suppressed the planted seedlings, are thinned to the original planting distances as far as practicable. At present, this operation is not done separately but is combined with pruning at the commencement of the second year.

Thinning.—Up to 1858, there was no regular method of thinning. From this time fairly regular and moderately heavy thinnings at an interval of three years were carried out up to 1874. It was however, recognised by this time that if the plantations were intended for first class timber, the thinnings should begin from the sixth or seventh year. From 1878 the thinnings actually began in the 9th year with further thinnings to follow in the 13th, 16th, 20th, 25th and 32nd years. But it appears that there was a tendency to leave trees in groups rather than evenly spaced. This hampered the attainment of maximum quality increment per tree, and maximum volume increment per acre.

During the period 1885—89, the average number of stems remaining in each compartment and the number of stems which should remain at each age per acre were recorded. The thinning by this time was more scientific and was based on the following two principles: (1) Endeavour to get the trees in the younger plantations, retained for final crop, into a better and more natural condition and habit of growth before they arrive at their thirtieth or at least fortieth year. (2) each tree to be provided with sufficient light and room and encouraged to cover its own ground by judicious and early thinnings. In this connection it should be remembered that teak is such a fast growing species and its crown is so quickly restricted by

friction the moment it comes in contact with that of another tree, that the method of thinning should aim at an even spacing of dominant trees and the removal of any tree which interferes with proper crown development of the former.

In 1896, based on previous experience the following general prescriptions were laid down for thinning. (1) Proper enumeration of trees to be made; (2) Thinning should be concentrated and not scattered; (3) difference in quantity of soil to be always taken into account; (4) early thinnings should be sufficient to admit adequate light (5) the executive officer should not be tied down by the plan and should be allowed to exercise his direction where necessary. These prescriptions were somewhat indefinite as regards practically carrying out the operation. So, in 1905, it was supplemented by the following definite prescriptions. (1) In plantations over 50 years especially and younger plantations, as well the trees expected form the final crop should be marked (2) On all alluvial soils, the marking, as a rule, should be confined to dominant and dead trees; (3) A dominated tree should not be removed unless interfering with the crown of a tree likely to form the final crop; (4) On dry and laterite soil, the marking will be as a rule confined to dead, dying and wind topped trees, and it is only where the trees are too crowded in groups that a dominant tree should be removed; (5) two good trees within a few feet of each other cannot remain for final crop and one of them should be removed at as early a stage as possible. In dealing with thinning in plantations where the trees are of large size, it was suggested to mark the trees to be thinned two years at least before the actual thinning years to arrange for the general removal of the top branches. This enabled the canopy to close before the actual thinning time and thus avoiding large gaps in the canopy. This is

all about the past theory and practice of thinning and the present opinion holds that practically none of the first rotation plantation has been thinned correctly from the start; otherwise the appearance of the plantations would have been much better with more crown development and even espacement.

The present prescription for thinning consists of the following hints:—

(a) Thinning should be as heavy as possible—the limiting factor being the capacity of the canopy to close up. (b) In young wood and in good localities, thinning should be much heavier than in old woods and in poorer localities. (c) Heavy final thinnings should be avoided in the oldest plantations. (d) Suppressed trees which are unsaleable should not be felled and the under-storey of miscellaneous species must be preserved. (e) Dead saleable trees, standing or falling must invariably be removed in thinning. So also the top broken trees and those that are accidentally broken in the course of thinning. (f) The first thinning to be started at the age of five years. At this stage mechanical thinning i. e. removal of each alternate stem irrespective of quality, was advocated and practised for some time; but it proved unsuitable. After the first thinning, there is no definite period of interval prescribed, at which the successive thinnings should follow. These are dependent on the condition of the crops which often varies from time to time according to local influences.

As to the number of stems to be retained per acre at the age of five and fifty, the first quality of soil should support 383 and 55; Second quality of soil—465 and 67; third quality of soil 571 and 86; definite numbers are prescribed for intermediate ages. For the final crop, the number of stems should vary from 30—40 trees per acre—according

to soil condition and other influencing factors of the locality.

Deteriorated condition of the soil in the older plantation:—The requirement of light condition in Teak plantations need very wide spacing (36' × 36'—present theory) for the trees of the final crop, whereas the deciduous nature of the species keeps the soil of the plantations quite bare of any covering during the hottest period of the year this exposing it to the mercy of the sun and wind. From 1862—1906, this condition was much enhanced by regular clearing of all the undergrowth in many of the older plantations. Due to intense beating of the sun on the fallen leaves and soil, there is seldom any possibility of humus formation. While on the other hand, the surface soil, especially on hill slopes, gets easily washed away in ensuing monsoon. After the removal of the first rotation crop, the above conditions together with hardening of soil, were clearly manifested while raising the second rotation crop on the cleared site. As a result of absence of under wood or under-growth very small stuff was available for burning over the area in most of the older plantations. All the above factors combined to cause a phenomenon which is technically known as deterioration of soil. It is mostly this deteriorated condition of soil that has been held responsible for the undesired result in the second rotation crop. A careful study and thought over the above conditions gave the following solutions to overcome the evil effect on the soil.

(1) Complete aeration over the whole area by thorough breaking up by ploughing between the rows, until all soil except that closest to the teak has been turned over. This is to be done in the year of formation.

(2) *Artificial introduction of ground cover crop*:—This is most essential to keep the soil loose and to prevent

the growth of grass and other weeds which are so prejudicial to the young teak. Following the example of Travancore, *Tephrosia candida*, a bushy Leguminous plant of 8'—9' height has been introduced here for ground covering. On pruning it becomes more bushy and the prunings together with normal leaf-shedding make a nice leaf litter and manure the soil to some extent. Once established it keeps down the worst grass and on proper pruning claims to suppress even the adventitious tree species. It is to be introduced preferably after the ploughing, taking advantage of the ensuing monsoon.

3. *Introduction of underwoods*:— This is indispensable for protection of the soil of the plantations in advanced stage. The research work at Nilambur is trying its best to find out suitable species for formation of underwood. The species should satisfy the following main conditions—(1) should be an evergreen species (2) should be fairly valuable (3) should be less costly formation and tending (4) should easily establish natural regeneration. The species tried here in the beginning (about 1914) did not satisfy the above conditions. Moreover, many of them died in the first year and most of the replaced casualties did not survive beyond the third year. Species tried were Rosewood, *Lagerstroemia microcarpa*, *Artocarpus hirsuta* and some other indigenous species. However, in a few cases of alluvial soil *Bambusa arundinacea* had formed a complete underwood. At present, a practical solution of the question has been arrived at, as a result of past experience. To be brief, it consists in the encouragement of the existing saplings and regeneration of all tree species and introduction of an evergreen species in small areas, in favourable conditions, with the object of raising seed-bearers which will produce underwood of the future. In some plantations which are due to be felled within a few

years and in which there is almost no underwood, it is supposed that artificial introduction of bamboo has got the most beneficial effect, protecting the soil and providing sufficient material for burning.

Both in the first and second rotation plantations *Hopea parviflora* has been chosen for the establishment of small evergreen patches, in favourable localities throughout the plantations. The winged seeds of *Hopea* travel a considerable distance and its natural regeneration has proved to form good underwood. Tending of this crop has been left to the discretion of the future management.

Reclamation of failed Teak areas in 2nd rotation:—

Good localities where the second rotation crop failed either due to flood or faulty method of regeneration are to be restocked as early as possible. In the meantime efforts are to be made for further improvement of quality by introduction of fast growing shrubs like *Tephrosia candida* and cuttings of *Vitex Negundo*. Sowing of bamboo seeds at stakes 20' apart will also protect the soil and improve the quality a lot. In some cases *Mimosa pudica* has formed a dense soil covering—which is a soil improver too. In others *Desmodium* species, *Lantana camera*, *Calycotris floribunda*, *Cleistanthus collinus* etc. have formed good soil covering and can be restocked under suitable conditions.

Different aspects of silviculture in connection with the teak plantations in Nilambur have been briefly discussed and it can be admitted undisputedly that the knowledge of silviculture in the same connection has reached an advanced stage by gradual experience and evolution. So, it is expected that the most recent and future plantations will give the best results in their turn and the older ones will receive the best treatment.

Attempts were made and plantations were started in United Provinces, Assam, Burma and other Provinces of India at an earlier date than Nilambur; but due to most systematic management, the Nilambur Teak plantations proved to be the most successful one. The present article may be concluded in the words of the Chief-Conservator, Madras Presidency, that Nilambur Teak Plantation forms to-day, area for area, one of the most valuable timber forests in the world."

[The above article is based on a personal visit, and information from the latest working plans for Nilambur.]

—H. Sen Gupta, Senior Student.

Our Camp at Silent Valley.

This year instead of camping at Dhoni, we had our camp at Thondakulam, about 15 miles from Mannarghat. We travelled about 5 miles to reach the foot of the hill, and then there was a very steep ascent of about 1 in 7 for about 5 miles upto Neelikkal, 3,000 ft. high. We were all awfully tired when we reached Neelikkal and yet there was a distance of about 5 miles to reach our camp. On reaching our camp, about 8,400 ft. high we all prayed that our juniors, may be spared this long tedious journey. We hope that our prayers will not be in vain.

General Vegetation.

It is very striking to see one species completely disappearing at a particular elevation and some altogether new species taking its place. At the foot of the hills we meet with purely deciduous species, and as we go up slowly and gently they fall back, while some new species which are midway between evergreen and deciduous types begin to spring up till on the top we find evergreens only, with a rare sprinkle of semi deciduous species. And if we go

towards Kanjikumban, we find on our way huge trees with long straight cylindrical boles often buttressed, slowly giving place to short stunted trees, which ultimately disappear into the grasslands. And if we go a little up to the peak (4513 ft. high) we see there nothing but the great pioneer plants mostly lichens at work. And it is this and this place only from which we can trace the history of the formation of forest. It is quite unnecessary for me to say about the great part which these tiny plants play in the formation of forests. Now we shall have a general survey of the important species existing there.

As we get down we find ourselves in dense grass; the soil here is but a few inches deep. We find here and there a sprinkle of *Wendlandia*, struggling for the cause of the right of existence for the forest trees. And as we get down we come across small stunted trees, living in compromise with grass. The common species to be found on the margin of grass land and Shola are *Olea*, *Lagerstroemia*, *Wendlandia*, *Glochidion*, *Macaranga*, *Meliosma Arnottiana*, *Sapium insignis*, *Simplocos*, etc. Then we come across a really dense forest, which has completely driven the grass from the area, after a struggle perhaps of centuries. Here we find very tall and buttressed trees, with long cylindrical boles. The reason for the majority of trees being buttressed is probably the shallowness of the soil and very heavy rains (125" per annum).

Of the many species, we find here, the following are the more important:—

Mesua ferrea, *Poeciloneum indicum*, *Calophyllum tomentosum*, *Palaquium ellipticum*, *Myristica* species, *Actinodaphne* sp., *Litsea Wightiana*, *Nephelium* sp., *Eugenia Munroni*, and other sp., of *Eugenia*, *Garcinia xanthochy-*

mus, *Hemicyclia elata*, *Acrocarpus fraxinifolius*, *Canarium strictum*, *Elaeocarpus tuberculatus*, *Cardamoms*, *Hereteria papilio*, *Ochlandra* spp., Pepper vines. *Laportea crenulata*, the Devil's nettle.

We find the following deciduous species here amidst the evergreen:—

Lagerstroemia lanceolata, *Terminalia tomentosa*, *Phyllanthus emblica*, *Cedrela toona*.

As we get down Neelikkal we come across the following species:—

Cullenia excelsa, the famous tree to be found on the border of Evergreen and deciduous Forest, *Careya arborea*, *Terminalia paniculata*, *Pterocarpus marsupium*, *Swietenia macrophylla*, *Albizia odoratissima*, *Phoenix* spp., *Helecteres Isora*, *Grewia tiliacifolia*, *Cassia Fistula*, *Dalbergia paniculata*, *Xylia xylocarpa*, (the famous sleeper tree of Nedungayam Camp is found here below 2500 ft.) *Dillenia pentagyna*, *Stereospermum chelonoides*, *Schleichera trijuga*, *Brideia retusa*, *Anogeisus latifolia*, etc., etc.

Object of Management.

The present object of management is to supply sleepers while in the past, *Kolmarms* were also extracted.

Method of Treatment.

The forest is being worked under Light Selection system, with patch regeneration of the blanks by some valuable species like *Acrocarpus fraxinifolius* *Dichopsis elliptica* etc. About 2-3 trees per acre are marked and felled. Sleepers are extracted on site. After being passed by the Forester the sleepers are dragged down to Kurwan gadu, whence they are carted to Melattur Railway station to be handed over to the Railway, after the final passing by the Utilization officer.

The sleeper operation was started by the department in March 1928. It worked very profitably; therefore the preparation of the Working Plan for these forests was considered quite necessary. At present about 5000 acres have been enumerated, and the Working Plan party has found that (a) there is a large deficiency of *Mesua* below 6 ft. girth, while there is no such deficiency with *Dichopsis elliptica*. (b) There is a large number of *Dichopsis* seedlings on the ground, while the contrary is the case with *Mesua*.

The conclusion from the above is that *Mesua* is being suppressed by *Dichopsis*, due to the latter's shade bearing nature, and its rapid growth. Therefore if everything is left to nature, a time shall come when *Mesua* will totally disappear from silent valley. Even at present we find some plots near Puchipara whence *Dichopsis* has completely driven out *Mesua*.

The following figures show the intensity of the sleeper operation at this valley:— (the figures represent the number of the sleepers sent down the valley in each month).

Month.	1928.		1929		1930	
	B. G.	M. G.	B. G.	M. G.	B. G.	M. G.
January.			1300	150	890	144
February.			937	76	253	221
March.	219	27	476	34	743	367
April.	400	40	125	9	1180	161
May.	1132	94	128	8	1181	288
June.	595	89	888	57	1344	504
July.	493	130	542	13	886	371
August.	744	139	1632	94	1169	471
September.	290	27	1971	235	1131	868
October.	575	73	1171	155	1143	1772
November.	831	117	1426	134	185	2126
December.	383	108	1054	128	355	1424
Total.	5962	824	11650	1093	10360	8717

Total number of B. G. sleepers up to December 1930=27672

" " M. G. " " " =10634

Loss due to conversions of sleepers varies for

B. G. sleeper from 16 to 89 %

M.G. sleeper from 22 to 84 %

The following is the cost of one sleeper, (excluding the overhead charges):—

No.	Item.	COST PER.					
		B. G. sleeper.			M. G. sleeper.		
		Rs.	AS.	P.	Rs.	AS.	P.
1	Felling and conversion.	1	8	0	0	12	0
2	Dragging to Karvangadu from coupe.	2	0	0	1	0	0
3	Carting to Melatore Railway station.	0	9	6	0	4	9
4	Spreading clamping and loading in wagon.	0	2	0	0	1	3
	Total.	4	3	6	2	2	0

The department sells the sleepers to railway at the rate of

B. G. Rs. 8 per sleeper.

and M. G. Rs. 3 per sleeper.

There are many species existing here, with long cylindrical boles, but they are not known to public, and if the department carries out experiments with the existing wood and shows to the public their different uses the day shall not be far away when even a stick of any species, hitherto unknown to public, shall remain in the forest. As an example of this I may quote here one practical instance. Before the Olavakkot saw mill came into existence there was little demand for *Grewia tiliaefolia*—nay it was not at all known that a day will come when there would

be a demand for this elastic wood from every nook and corner. Today we see the extraordinary demand for this species. Why? Because the department did explain to the public the uses of this species by experiments. There is then no wonder that a day shall come for *Dichopsis* and other similar species also. What the value of this forest shall then be is very difficult to estimate.

HARBANS SINGH,
(Indore State).

"Club-Day," Madras Forest College; 1931

The students' club anniversary day was celebrated on the 29th March. The Principal, Mrs. Wrench, Mrs. Griffith Mrs. Belliappa, Instructors, the Members of the staff and a few outside gentlemen attended the function and added to the joy of the students.

Mrs. J. C. Wrench kindly took the chair and distributed the prizes, awarded for indoor and outdoor sports in connection with the club-day. The indoor-games were continued through the previous week and the finals were played on the morning of the 29th. As for the out door sports, it took place on the 28th morning. The Principal, Mrs. Griffith and all instructors witnessed the sports. The following are the prize winners of the sports and games:—

Indoor—	(1) Carom	M. Gousuddin } M. Is-Haque }	Pair.
	(2) Ping Pong	V. M. Sarangapani.	
	(3) Chess	Moinuddin.	
Outdoor—	(1) Slow cycle race.	Z. Aerial.	
	(2) Sack race	Mahmood.	
	(3) Three legged race.	M. Hag H. Sen Gupta.	Pair.
	(4) Leap-frogging	M. A. Pathan H. Sen Gupta.	Pair.
	(5) Potato race	R. R. Singh.	

Fancy Dress competition S. H. A. Rezvi.

Rezvi got this prize for his show of "Meeting of the west and the east," in which he dressed himself half-European and half-Indian suit. In this connection on behalf of the club I offer my hearty thanks to the Senior Student M. Haq who kindly offered a prize for Fancy Dress competition.

The guests assembled in the club-house at 3-15 P. M. and the following programme was gone through in succession :—

- | | |
|-----------------------------|---|
| 1. Opening Song | M. Gausuddin. |
| Two other songs | J. M. Singh and V. N. Sarangapani. |
| 2. Comic | A. Hamid and Sen Gupta. |
| 3. Fancy dress competition. | 1. S. H. A. Rezvi.
(a) Meeting of the west and east.
2. Z Aerial. A typical Afghan tribesman.
3. R.R. Singh. South Indian Policeman. |
| 4. Physical feats | H. Sen Gupta.
(1) Indian club play.
(2) Breaking of stone on the chest.
(3) Weight lifting.
(4) Stopping of Motor car. |

In the last item he was not totally successful as the tying of rope and foot hold were not firm.

- | | |
|------------------------|---|
| 5. Magical Performance | J. A. Ratnam—an amateur from Mysore. His show was quite good. |
| 6. Prize distribution | By Mrs. J. O. Wrench. |

After prize distribution, Mr. Wrench on behalf of Mrs. Wrench thanked the Hon. Secretary for having invited Mrs. Wrench to distribute the prizes and also for the successful carrying out of the programme for the day.

Then at about 6 P. M. the guests were entertained with tea. The gathering dispersed at 6-30 P. M. Our heart felt thanks are due to Mrs. Wrench and all the guests who graced the occasion by their presence.

H. SEN GUPTA,

Hon. Secretary, Students club, M. F. C.

COLLEGE NOTES.

Notes on "Tennis for 1930-31."

Tennis has been unfortunately regarded in this College as a very minor game. And there I do not agree with the holders of the view. The present Chief Conservator, in his speech last year on the College-day rightly struck the chord of my heart felt feelings in the following two sentences.

"The reduced numbers naturally re-act adversely upon your games to which importance is rightly attached but from what little I have been able to see for myself you appear to play your games in the right spirit and it is difficult to credit a story of a Tennis event having failed to attract entrants for the reason that there were no prizes. Such an attitude would show a complete lack of appreciation of the meaning of the games to the best of which there are no prizes attached."

Tennis is the only and lonely game to play which the majority of the students would get chances in their future life after passing out of this college. The other games are only team games and foresters cannot manage to play them except under very rare circumstances.

Being the Honorary Secretary and the Tennis Captain I considered it my duty to attach a few prizes to this game by introducing Tennis doubles; more so in view of the above remarks of the Chief Conservator. But unfortunately this year our club fund ran short too much and we could not help it. However I earnestly pray that the authorities will agree with me and the present C. C. F. in encouraging this game by treating it equally, if not more important.

It is hoped that from the next year Tennis Singles as well as Tennis doubles will be played, and the prizes for the winners and runners up will be attached.

Unlike previous years, this year the Tennis Singles were played before the hill-station-camps, for otherwise they would have come in the way of our examinations. This change is certainly for the better.

In the Tennis Singles there were 12 entries and 11 matches were drawn out by lots and by distributing good and bad players evenly in both the rounds. This was made to make the finals most interesting. The final match was played between V. N. Sharangpani—junior student and Abdul Hamid—senior student and the former won the championship by obtaining 3 sets to 1.

The game was much better this year than last year in quality and quantity. It is hoped that it will be still better next year.

Now I take the opportunity to thank the Vice-president and the president for taking a keen interest to encourage this undoubtedly the best of the games.

ABDUL HAMID,
Tennis Captain and
Hon. Secretary of Games,
COIMBATORE.

Hockey.

Hockey is the game which is supposed to be one of the major sports-events of this college, and is always encouraged by our college authorities as far as possible. It requires an enthusiastic regular practice to attain proficiency. Unfortunately during this term on account of various other more important duties such as camp-programmes, sports, cross country race, etc, we could devote very little time to it. In the month of February we were all busy with sports practice as the college had entered into Y. M. C. A. tournaments, and then with cross country race practice.

The only draw-back in our team is that we are lacking in combination, which is due to the fact that we have had such disjointed team practice. Now as all other sports and cross country race final have finished we strongly hope to remove this weakness in a very short time.

In this term up till now, we have played three matches with outside teams, one with the Agricultural college, and the other two with Stanes School. The first was a well contested match. Both the sides played with equal zeal and enthusiasm. After a great resistance from both the parties the game ended in our favour with the result of 3 to 2.

Next time we met Stanes School on their ground on the 5th of March. We took it very easily or rather we were over-confident of our superiority, and the result was that the opponents managed to score seven goals over us. 5 of these goals being scored in $\frac{1}{4}$ hour. This pulled the team together, but it was too late, and we only succeeded in scoring two goals. Result 7—2.

We again met Stanes School on our ground on the 12th March. This day our captain M. Ishaque one of

the best players of the team could not play owing to illness, but still we offered a good opposition to our school friends, with the result that an excellent display of hockey was witnessed. Unfortunately the game ended in their favour with the score of 3 to 2.

In conclusion it may be said that it is really creditable for the team to make so much improvement after two days' practice in two months.

J. M. SINGH,
Vice-Captain, Hockey.

Cricket.

Though this year our team is better than last year's, particularly due to Mr. Griffith, First Senior Instructor, and Sarangpani and Mahmood, junior students, we cannot expect to do much at cricket, as only one day is allotted for this game in a week. There are certain students, who may prove better than some of the players in the first eleven, provided they are given proper practice; but having one day in a week and only one practice pitch, it goes very difficult to give them proper practice.

We played the following matches this year.

No.	Opponents.	Result.
1.	Government College	Lost by 6 wickets & 12 runs.
2.	Agricultural „	Won „ 4 „ 10 „
3.	Stane's High School	„ „ 5 „ 25 „

In the above matches we were quite good at fielding and bowling, while there was general lack of confidence in batting.

HARBANS SINGH,
Cricket Captain.

Cross Country Race—1931.

The annual cross-country race was run along the usual course of $7\frac{1}{4}$ miles, on the morning of the 14th March 1931, starting at 6 o'clock from the gate of the Principal's bungalow, and finishing at the same place. The course was a very difficult one and offered obstructions in various ways. The following was the result:

- I. R. R. Singh (Senior Division)—48 min., 25 secs.
- II. M. S. A. Khan Do.
- III. Ismail Khan (Junior Division).

Prizes awarded by A. A. F. Minchin Esqr., for
essays on Forestry:—

Mr. A. A. F. Minchin, Conservator of Forests, Second circle, was pleased to offer prizes for the best essay on the following subjects:—

(a) *For Senior Students of the Madras Forest College:*

Subject: "You have to give an address to small children aged 8 and 11 at a Primary school regarding the utility of Forests. Express in an essay just what you would tell them."

The winner of the I prize was *M. Haq.*

" " II " *H. S. Gupta.*

(b) *For Junior Students:—*

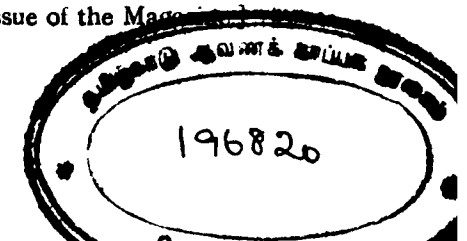
Subject: "You have to address a class of young people of secondary school age, say 14 to 16, on the value of forests in the country. Express in an essay* what you will tell them."

The winner of the I prize was *V. N. Sarangapani.*

" " II " *Mandke.*

[*The winning essay is published in this issue of the Magazine.]

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Debating Society.

A debating Society is formed in the college, under the presidentship of the principal of the college. The meetings are held every Friday night. The following subjects have been discussed up till now successfully:—

- (1) Poets are born and not made.
- (2) Preservation of game in India at present is inadequate.
- (3) A forester is Jack of all sciences and master of none.
- (4) "Metal sleepers *versus* wooden sleepers."

At present M. Haq is acting as the Secretary.

EXTRACTS.

1. Forest industries of Mysore in 1929-30.

In a review of the Report on the Administration of the Forest Department, Mysore for 1929-30, the local Government state:—

Sandalwood: A quantity of 2,197 tons of good wood was supplied to the sandal oil factories as against 2,360 tons in the previous year, and the net receipts from the sale of the oil was Rs. 23,29,171 as against Rs. 24,62,829 during the previous year.

Lac industry: The quantity of crude lac collected during the year was 1,025 maunds as against 851 maunds in the previous year, but the amount realised by the different kinds of lac products was only Rs. 3,326 as against Rs. 13,75 in the previous year. Owing to the very low prices ruling in the market, the whole of the stock was washed lac and lac dust remained unsold at the close of the year and this accounts for the fall of revenue under this head. The future of this industry is reported to be gloomy as the main industries in which lac was being largely used,

namely polish manufacture and gramophone plates have come to a standstill by the introduction of cellulose paints and wireless broad casting. Retrenchments in expenditure on this work are under investigation and the services of the lac expert have since been dispensed with.

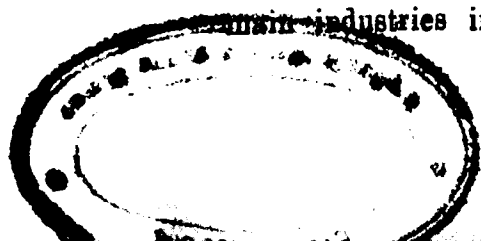
Forest Industries:—The concluding paragraphs of the report under review contain brief references to experiments carried out with varying degrees of success in connection with several new industries connected with forest products such as the manufacture of sports materials, manufacture of charcoal, extraction of oils and fats, collection of silk cotton and Dinda gum, manufacture of ply wood and veneers etc. A number of problems relating to forest industries which are already in existence or which are capable of being developed was indicated in the review for the previous year and a hope was expressed that the chief conservator would take steps to arrange for the collection of information and statistics bearing on them and for their investigation on the technical and economic sides. But it is stated in the present report that the information gathered so far is neither adequate nor comprehensive to admit of any useful review. It is expected that better progress will be reported in the next year.

—*The Indian Trade Journal, March 5, 1931.*

2. Inquiry into spike disease of Sandal:

Dr. M. O. Forster, Indian Institute of Science Bangalore, writes:—

On 27th January the Madras Legislative Council discussed the proposal of Government to continue the investigation of spike disease in sandal, which has been conducted at the Indian Institute of Science, Bangalore, during



the past three years. A motion for reducing the grant elicited some support, largely on the ground of economy and being in complete sympathy with all efforts to reduce unnecessary public expenditure. I desire to allay the anxiety of those members who supported the reduction by assuring them that the money is being spent carefully and that the inquiry offers reasonable prospects of success.

In saying that the investigation has not yet produced any "definite results" perhaps the hon'ble the Law Member was inspired by legal caution. Actually the results are numerous and promising while some are quite definite: but they do not yet justify a definite conclusion and it is towards a definite conclusion that all efforts will be directed in the three years ensuing. One very definite result is a recognition of the unforeseen complexity which characterises the problem, and even when the cause of sandal-spike is revealed, prevention or cure of the disease may not follow immediately. Those familiar with historical aspects of scientific research will remember that synthetic indigo-production on a commercial basis had to wait until thirty years after the road to success had been indicated by the result of laboratory researches.

During the debate it was usefully suggested that co-operation with the Government of Mysore might be sought and already the preliminary steps in this direction have been taken: meanwhile technical assistance from the Forest Research Institute, Dehra Dun, has been enlisted. It is a truism that expenditure on scientific research is a form of insurance premium, and the tax-paying public may be assured that their contribution to this particular struggle with one of nature's unkind surprises can be fully justified by the manner of its execution and the importance of its aim.

—The Hindu.

3. Seed Treatment.

Two main reasons influenced the starting of experiments on the treatment of seed in order to induce early and perhaps a higher percentage of germination. The first was the difficulty experienced with the germination of *Acrocarpus fraxinifolius*. It was found that although germination started comparatively early, it went on sporadically for a long time, germination having been found to be taking place more than a year after sowings. The species was considered an important one for restocking gaps made in evergreen forests under the system of selection feelings but the behaviour of the seed was proving very tantalizing: other similar cases also come to notice.

The second reason was that it was felt that many causes of failure were directly ascribable to lack of definite information on the subject in consequence of which Divisional Officers more or less arbitrarily fixed one and the same date for sowing all species irrespective of the idiosyncrasies of each.

It was particularly felt that if the best method of securing quick and a high percentage of germination could be worked out for all species in which we are interested, it would be possible to lay down definitely that sowing should be done on the outbreak of the monsoon after particular seed had been treated in a particular way.

For the purpose of these experiments, large pots were used; these were expensive but as each set of species is finished with, the pots will be emptied and refilled with fresh soil and they will be used over and over again.

As a beginning, the following species were taken up: some at the special request of Divisional Officers; and 50 seeds sown in two pots at 25 each. It will be noticed that

several *Xerophytes* are included, the reason being that they are usually very refractory and we wanted information about them for our experiment in dry areas.

Acrocarpus fraxinifolius.

Acacia cyanophylla.

Cassia siamea (from Cuddapah).

Leucaena glauca (from Chingleput).

Sapindus emarginatus.

Acacia ferruginea (from Sadivayal, species doubtful).

Acacia terruginea (from Harur, Salem District).

Dodonaea viscosa (from Tinnevely).

There was cyclonic rain for three consecutive days on the 10th, 11th and 12th May 1930, and in the case of *Acacia cyanophylla* and *Dodonaea viscosa*—two species which appear to strongly resent the least water-logging,—the tiny seedlings suffered considerably and rapidly died out.

Acrocarpus fraxinifolius gave 60 per cent success at the end of the third week after treatment with sulphuric acid for 10 minutes, whereas the control only gave 32 per cent success at the end of the sixth week and 34 per cent at the end of the ninth week.

Acacia cyanophylla requires 15 minutes treatment with sulphuric acid; this gave 44 per cent germination at end of the fifth week when the control showed only 4 per cent. Soaking in cold water was almost useless.

Acacia ferruginea seed from Sadivayal did best with untreated seed but treatment with sulphuric acid for 5 and 10 minutes hastened germination and gave us final results two weeks earlier than untreated seed. Seed of this species when soaked for two days in cold water gave a cent per cent success at the end of the third week but unknown factors operated in killing out half the plants.

The experiments with *Acacia ferruginea* seed from Salem district was spoilt by some of the pots being overturned during the cyclone.

Leucaena glauca gave 66 per cent germination at the end of the fifth week after being treated with sulphuric acid for 5 minutes, at which time untreated seed gave only 40 per cent and this latter figure was not subsequently improved upon. In the case of this species, soaking of the seed in cold water for two days and three days has given practically the same results as untreated seed.

Except for the boiling water treatment which destroyed the seed, *Sapindus emarginatus* benefited considerably and more or less equally by all treatments, untreated giving only half the results of the treated seed.

In the case of *Cassia siamea* also, the boiling water treatment destroyed the seed. The best results were with seed treated with sulphuric acid for 10 minutes but these were not appreciably better than seed soaked in cold water for two days though germination was far quicker.

A noteworthy point about nearly all the above result is that treatment with sulphuric acid even for 15 minutes appears to be less drastic than putting seed into boiling water. Only one species (*Acacia ferruginea* from Sadivayal and Salem) did not suffer by the boiling water treatment. Another important result is that treatment with sulphuric acid *always* resulted in the earliest germination and seeds which were to germinate completed the process a long time—sometimes amounting to several weeks—before other methods. A third point is that in no case did treatment with sulphuric acid act detrimentally.

That treatment consisted of pouring over the seed just sufficient acid to cover them. The seed was allowed to

remain thus for the required length of time and were then removed and well washed to remove all traces of acid. Concentrated H_2SO_4 (S. G. 1.84) was used.

These experiments appear to point out that, with very few exceptions, all seeds require treatment of some sort and that success with direct dibbling in the forest would probably be very greatly enhanced if seed is first properly treated, for, for one thing, it must be remembered that the longer the seed lies in the ground before germinating, the more chances there are of its being destroyed by vermin.

—*Report on Sylvicultural Research,
Madras Presidency, 1929-30.*

4. Elephants: Dragging with harness *versus* dragging by mouth:

The disadvantages of the harness method are:—(i) The harness causes injury to the animal. Inflammation and abscess and saddle galls are quite common. (ii) The animal is strained at the shoulders and back which are not its strongest parts. (iii) The animal is handicapped being unable to see the log that is being dragged. (iv) There is serious risk while working on slopes.

As against these, the method of dragging by the mouth has the following advantages:—(i) Comparative freedom from bodily injuries (ii) It exercises the strongest parts of the elephant *viz.*, the head and neck. (iii) Heavier logs are pulled and more work is turned out. (iv) The animal is able to use its intelligence in overcoming obstacles. (v) There is little risk even when working on slopes.

—Extracted from article by R. S. Govindaswamy, Veterinary Assistant Surgeon, Tellichery, published in the *Indian Forester*, Feb. 1931.

The Forester.

Far from the stormy sphere of human life,
Where ruinous love and thankless pride are rife,
Where but the rich repute and joy can tempt,
While fall the poor a prey to stern contempt;
Bounded with woods in a sequestered place
The Forester runs a solit'ry race ;—
A stranger to society, friend to toil,
Simple and bold and free from all turmoil.—
A man he is to all the Sciences known,
And skill in arguing too he does own ;
Lands to measure, houses and roads to build,
With prodigious knowledge his head is filled ;
Nature he can describe and figures draw,
And knows a deal to use the axe or saw ;
His thoughts in propagating e'er immersed,
In sowing and nursing he is well versed ;
Oh ! to think of his talents and his tact
Makes one shudder, or vain pride counteracts.
The doleful cuckoos that the dawn carol
And rouse to act the listless gay red-poll,
Amidst his overpow'ring sleep he hears
And finds in East the king of day appears,
Extending his arms to the green verdure
That in the night bath pined for his grandeur.
And with a thankful heart he breaks his fast
With a simple, frugal, lowly repast ;
Attired in green, and armed with a bill-hook,
The mountaineer then sets about to look
If lack of scruple wood-land laws should break,
Or parasitism worse its wealth would make,
O'er hills and dales leads his venturesome way
Untrodden by human foot far away ;
Threat'ning precipices and crumbling rocks
And slippery cliffs, o'er them all he walks ;
Those thickets where his foot-steps startle the stag
That flees to make the waiting tigers lag,
Where lies the king of beasts in his idle lair
With hopes of seeking his nocturnal share ;
Those dark shades that the sun's bright rays repel,

Where flying-foxes and bats shameful dwell;
 The grass-grown tracts where the deer has its fill
 And the wood-cock's shrill clarion breaks the still;
 Those breezy tracts that hindered lovers haunt,
 And where tired nature finds a much felt want;
 These, he traverses with unfailing strength,
 And his ramble o'er homeward turns at length.
 Thus when the tired sun downward steers his course
 To pass beyond the western hills, with force,
 And all the elements are in purple clad,
 The Forester reaches his cottage sad,
 Hailed by the song of birds that seek their roost
 And labour's melancholy try to oust.
 With scant morsels he reinvigorates
 Himself, with glee, out of his hard-earned plates;
 And lost in lovesome merriment retires
 To his bed, while the nightingale inspires
 Sweet melody into his barren ears,
 And the mournful owl its revelry cheers;
 And lulled by noisy brooks and humming bees,
 He falls into a deep slumber with ease,
 Indeeds, is there such a soul that owns not
 That he covets the Forester's hard lot?

S. Shenbagam.

Notifications Relating to Rangers.

5—12—'30. I. With effect from 15-11-1929 to 14-11-1930,
 vice Ranger I. Z. Robert Paul, V grade, reduced to the
 VII grade:—to V grade sub protem.

M. R. Ry. T. S. Ratnavelu Mudaliyar from 15-11-1929 to 16-1-30
 „ S. Ramanujam Sesha from 17-1-1930 to 15-4-1930
 „ C. N. Narasimhacharya from 16-4-1930 to 24-4-1930
 Mr. B. Ghulam Dastagiri from 25-4-1930 to 1-5-1930
 Mr. B. Coates ... from 2-5-1930 to 28-5-1930
 M. R. Ry. A. M. Srinivasalu Nayudu from 29-5-1930 to 18-9-1930
 „ P. Ramaswami Ayyar from 19-9-1930 to 14-11-1930

II. With effect from 19-9-30 vice Ranger C. Ramaswami
 Nayudu, I grade, retired from service:

(1) Mr. M. Huseain Khan from I grade sub protem to I grade
 permanent.

(2) Khan Sahib K. Kunhirayan from II grade permanent to
 I grade sub protem.

(3) M. R. Ry. N. K. Sarma from II grade sub protem to II
 grade permanent.

(4) M. R. Ry. A. Krisnamacharya from III grade permanent
 to II grade sub protem.

(5) M. R. Ry. S. M. Krishnaswami Ayyar from III grade
 sub protem to III grade permanent.

(6) Mr. K. C. Joseph from IV grade permanent to III grade
 sub protem.

(7) M. R. Ry. M. R. Duraiswamy Ayyar from IV grade sub
 protem to IV grade permanent.

(8) M. R. Ry. S. Sankaran from V grade permanent to IV
 grade sub protem.

(9) Mr. B. Ghulam Dastagiri from V grade sub protem to V
 grade permanent.

(10) M. R. Ry. A. M. Srinivasalu Nayadu from VI grade
 permanent to V grade sub protem.

5—12—'30. In modification of this office Mis. No. 347 dated
 14-8-1930, the following promotions of Rangers are ordered:—

I. *With effect from 16th April 1930 vice Ranger J. A. Paul D'Cruz. resigned.*

(1) M. R. Ry. B. Sambamurti Ayyar from III grade Sub protem to III grade permanent.

(2) Mr. Henry MacBride from IV grade permanent to III grade sub protem.

(3) M. R. Ry. T. M. Duraiswamy Pillai from IV grade sub protem to IV grade permanent.

(4) Mr. Saiyid Munawar from V grade permanent to IV grade sub protem.

(5) M. R. Ry. I. Sambasiva Rao Nayudu from V grade sub protem to V grade permanent.

(6) M. R. Ry. S. Ramanujam Sesha from VI grade permanent to V grade sub protem.

(7) M. R. Ry. P. A. Madhavan from VII grade sub protem to VII grade permanent.

(8) M. R. Ry. N. Ayyanna, Supernumerary Ranger to VII grade sub protem.

II. *With effect from 25th April 1930 vice Ranger N. L. Narasimham, III grade retired.*

(1) M. R. Ry. K. Venkataraman from III grade sub protem to III grade permanent.

(2) M. R. Ry. P. Sankunni Menon from IV Grade permanent to III grade sub protem.

(3) M. R. Ry. V. Narayanaswami Ayyar from IV grade sub protem to IV grade permanent.

(4) Mr. E. W. Fernandez from V grade permanent to IV grade sub protem.

(5) M. R. Ry. T. S. Ratnavelu Mudaliyar from V grade sub protem to V grade permanent.

(6) M. R. Ry. C. N. Narasimhacharya from VI grade permanent to V grade sub protem.

(7) M. R. Ry. N. Rajagopalachetty from VII grade sub protem to VII grade permanent.

(8) M. R. Ry. J. S. Vedanayagam, Supernumerary Ranger of VII grade sub protem.

III. *With effect from 2nd May 1930 vice Ranger A. P. Srinivasa Ayyangar retired.*

(1) Mr. Henry MacBride from III grade sub protem to III grade permanent.

(2) M. R. Ry. S. M. Krishnaswami Ayyar, from IV grade permanent to III grade sub protem.

(3) Mr. Saiyid Manawar from IV grade sub protem to IV grade permanent.

(4) M. R. Ry. M. B. Duraiswami Ayyar from V grade permanent to IV grade sub protem.

(5) M. R. Ry. S. Ramanujam Sesha from V grade sub protem to V grade permanent.

(6) Mr. B. Ghulam Dastagiri from VI grade permanent to V grade sub protem.

(7) M. R. Ry. N. Ayyanna from VII grade sub protem to VII grade permanent.

IV. *With effect from 29th May 1930 vice Ranger B. Sambamurthi Ayyar, III grade deceased.*

(1) M. R. Ry. P. Sankunni Menon from III grade sub protem to III grade permanent.

(2) M. R. Ry. T. Paramasivam Pillai from IV grade permanent to III grade sub protem.

(3) Mr. E. W. Fernandez, from IV grade sub protem to IV grade permanent.

(4) Mr. P. M. Matthew from V grade permanent to IV grade sub protem.

(5) M. R. Ry. C. N. Narasimhacharya from V grade sub protem to V grade permanent.

(6) Mr. B. Coates from VI grade permanent to V grade sub protem.

(7) M. R. Ry. J. S. Vedanayagam, from VII grade sub protem to VII grade permanent.

V. *With effect from 1st December 1929 up to 31st May 1930 vice Ranger B. V. Rangaraja Ayyar temporarily reduced from the II to the III grade.*

M. R. Ry. A. Krishnamacharya from III grade permanent to II grade sub protem.

VI. *With effect from 10-8-1929 to 9-8-1930 vice Ranger T. Sriramulu Naidu, VII grade, reduced as Forester First grade.*

to VII grade sub protem.

M. R. Ry. M. M. Mandanna	from 10-8-1929 to 14-9-1929
„ M. V. Ganesan	from 15-9-1929 to 16-1-1930
„ P. A. Madhavan	from 17-1-1930 to 21-1-1930
„ N. Rajagopala Chetty	from 22-1-1930 to 28-3-1930
„ N. Ayyanna	from 29-3-1930 to 15-4-1930
„ J. S. Vedanayagam	from 16-4-1930 to 24-4-1930

First Circle.

9—12—30. M. R. Ry. R. Jagannatham Naidu, Ranger VI grade in charge of Mojjogoda Range, Ganjam, is granted leave on average pay for 4 months from 1-12-1930.

11—12—30. 1. M. R. Ry. G. Rama Rao, Ranger IV grade, on the expiry of his leave (14-12-30), to Mahendra, Parlakimidi Division.

2. M. R. Ry. B. Alagiriswami Naidu, Ranger III grade on the expiry of leave, (1-1-1931) to Mojjogoda Range, Ganjam District vice Ranger R. Jagannathan Naidu, granted leave.

3. M. R. Ry. B. V. Vaideswara Iyer, Ranger V grade, on the expiry of leave (8-1-1931) to Lakkavaram Range, Upper Godavari Division.

31—1—31. M. R. Ry. C. T. Tiruvengadam, Ranger IV grade, is granted leave on average pay under Fundamental Rule 81 for 3 months and 26 days from 15-4-1931 or date of relief.

10—2—31. The leave on average pay on medical certificate for 4 months granted to M. R. Ry. D. Ramakrishnayya, Ranger IV grade is extended by leave on average pay on medical certificate for 2 months.

25—2—31. Gulam Dastagiri Sahab, Ranger VI grade, is granted an extension of leave on average pay not due on medical certificate for one month from 2-2-1931.

2—3—31. M. R. Ry. B. Kotilingam, Ranger VIII grade, Ganjam, is granted leave on average pay for 3 months with effect from date of relief.

11—3—31. M. R. Ry. K. Venkatesam Naidu Ranger VI grade, Guntur is granted leave on average pay for 4 months from

date of relief by Range officer Repalli Range who will hold additional charge of Sattenapalli Range.

11—3—31. M. R. Ry. T. Balaramaswami Naidu, Ranger VII grade is granted extension of leave on average pay on medical certificate for 4 months from 30-10-30 in continuation of the 2 months leave granted to him.

12—3—31. Supernumerary Ranger A. Tirupatirayudu is posted to Pulusumamidi Range, Godavari Upper division to relieve Ranger Tiruvengadam granted leave.

13—3—31. M. R. Ry. T. Balaramaswamy Naidu Ranger VII grade granted further extension of leave for six months from 1-3-1931 on medical certificate.

20—3—31. M. R. Ry. R. Jagannatham Naidu, Ranger VI grade, is posted to Sattenapalli Range, Guntur District on expiry of his leave on 31—3—1931 vice Ranger K. Venkatesam granted leave.

24—3—31. (1) Mr. D. E. Lewin, Ranger IV grade from Bhadrachellam to Nugur Range.

(2) M. R. Ry. M. Umappathi Mudaliar, Ranger VI grade from Nugur to Bhadrachellam Range.

Second Circle.

19—2—31. M. R. Ry. G. Devanayagam Nayudu, Ranger, IV grade, Kurnool South Division is granted extension of leave on average pay for one month from 22nd February 1931 in continuation of the leave already granted.

13—3—31. M. R. Ry., M. Krishna Rao, Ranger III grade, in charge of Bairlutty Range of Kurnool West Division is granted combined leave for 8 months from 15th April 1931 or date of relief.

2. M. R. Ry., A. Ranganayakulu Nayudu, Ranger II grade in charge of Cuddapah Range of South Cuddapah Division is granted leave on average pay for 2 months and 9 days from 15-4-31 or date of relief.

3. M. R. Ry., N. Rajagopal Chetty Ranger VII grade in charge of Kurnool Range of Kurnool West Division is granted leave on average pay for 4 months from 15th April 1931 or date of relief.

4. M. R. Ry. P. Dhananjaya Rao Ranger IV grade in charge of Rajampet Range, of South Cuddapah Division

is transferred to Bairlutu Range of Kurnool West Division to relieve No. 1.

5. M.R.By. G. Devanayagam Nayudu Ranger IV grade (Kurnool South Division) on return from leave (i. e., 22nd March 1931) is posted to the charge of Rajampet Range, South Cuddapah Division to relieve No. 4.

6. M. R. Ry. P. V. Krishna Rao Nayudu Ranger VI grade in charge of Bukkapatnam Range of Anantapur Division is transferred to Cuddapah Range of South Cuddapah Division to relieve No. 2.

7. M. R. Ry. T. M. Krishnamachary Supernumerary Ranger Kurnool West Division on return from leave (i. e., on 1st April 1931 is posted to Bukkapatnam Range of Anantapur Division to relieve No. 6.

8. Mr. A. K. Sheriff Ranger VII grade in charge of Vonipenta Range of North Cuddapah Division is transferred to Kurnool Range of Kurnool West Division to relieve No. 3.

9. Mr. B. Venkata Rao Forester II grade (M. R. H.) of Kurnool West Division is temporarily posted to the charge of Vonipenta Range of North Cuddapah Division to relieve No. 8.

21—3—31. B. Venkata Rao Forester II grade of Kurnool West Division (under orders of transfer to the charge of Vonipenta Range of North Cuddapah Division) is posted first, temporarily to Kurnool Range of Kurnool West Division to relieve M. R. Ry., N. Rajagopal Chetty who has been granted leave. The relief should be completed not later than April 15.

2. Mr. A. K. Sheriff Ranger VII grade in charge of Vonipenta Range (who was under orders of transfer to Kurnool Range) is posted to Gundlakamma Range of Kurnool South Division.

3. M. R. Ry., K. R. Viswanatha Ayyar, Ranger III grade in charge of Gundlakamma Range is posted to Kurnool Range of Kurnool West Division on relief by No. 2.

Third Circle.

6—12—30. Mr. K. K. Appaiah, Ranger V Grade, Mount Stuart Division is granted a week's leave on average pay from 8-1-1931 with permission to prefix the Christmas and New year holidays.

2. He should join Beypore Depot after the expiry of the leave.

4—3—31. Forester M. Rajaram Pillai is granted an extension of leave on average pay for 9 days with medical certificate from 1-1-31 to 9-1-1931 and on half average pay for one month and 22 days with medical certificate from 10-1-1931 to 28-2-31 (both days inclusive).

4—3—31. Forester A. Muhammed Akbar Sahib I grade, Working Plans Duty, North Coimbatore Division, Ekkathur is transferred to Hassanur (headquarters) with effect from the date of the completion of his present work.

14—8—31. Forester M. Rajaram Pillai, I grade is granted an extension of leave on half average pay for one month on medical certificate from 1-3-1931 to 31-3-31 (both days inclusive).

Fourth Circle.

12—11—30. M. R. Ry. S. Ramanujam Sessa Ranger VI grade South Salem Division is granted further extension of leave (not due) for 4 months on half average salary on Medical Certificate in continuation of the leave granted to him.

5—12—'30. M. R. Ry. K. P. Chathu Nair, Ranger IV grade Central Salem division is granted leave on average salary on Medical Certificate for 4 months from 27-11-30.

10—12—'31. M. R. Ry. K. M. Gopalachary, Ranger IV grade on return from leave is transferred from Chittoor to Vellore division and is posted to Santhavasal Range.

2. On relief by No. 1 Mr. Abdul Ali Khan Assistant Conservator of Forests is posted to Vellore for preparation of a working plan for Odugathur Range.

10—2—31. Trained Forester N. B. Kalappa is transferred from Central Salem division to Vellore division to hold charge of Santhavasal Range.

17—2—31. M. R. Ry. K. M. Gopalachari, Ranger IV grade Santhavasal Range is granted leave on average pay on Medical certificate for 3 months with effect from date of relief.

4—3—31. M. R. Ry. K. R. Subramaniam, Ranger VI grade in charge of Chengam Range is posted to hold additional charge of Tiruvannamalai Range, Vellore division; relieving Ranger V. D. Ramalingam reported sick.

- 4—3—31. M. R. Ry. T. E. Varadachari, Ranger III grade, is granted extension of leave on medical certificate for 3 months i. e., on average salary for 1 month and on half average salary for 2 months in continuation of the leave granted to him.
- 7—3—31. M. R. Ry. V. D. Ramalingam Pillai, Ranger VII grade Tiruvannamalai Range is granted leave on average pay on medical certificate for 2 months with effect from date of relief by M. R. Ry. K. R. Subramaniam Range Officer, Chengam (i.e. from 2-3-31) forenoon.
- 13—3—31. M. R. Ry. S. Ramanujam Sesha, Ranger VI grade is, on return from leave, transferred from South Salem division and posted to Tiruvannamalai range, Vellore division.
- 14—3—31. 1. M. R. Ry. J. S. Vedanayagam Ranger, VII grade from Anchetti Range North Salem division to Rasipur Range South Salem division No. 1 to move first and relieve No. 2.
2. M. R. Ry. C. Karunakara Menon, Ranger IV grade, Rasipur Range on relief by No. 1 to Anchetti Range North Salem division.
- 27—3—31. M. R. Ry. K. P. Chathu Nair Ranger IV grade, Central Salem division is granted extension of leave on average salary on medical certificate for 4 months in continuation of the leave already granted to him.

Fifth Circle.

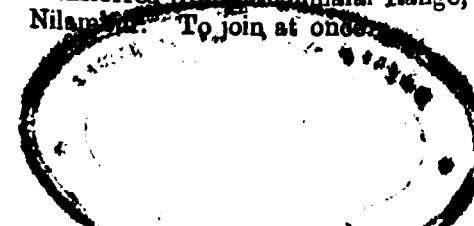
- 10—12—31. 1. M. R. Ry. N. S. Eswara Ayyar, Ranger VI grade is transferred from V Circle to III (Working Plan) Circle.
2. M. R. Ry. P. Sankunni Nair, Ranger VI grade is posted to charge of Palani Range, Madura District to relieve No. 1.
- 10—12—30. The transfer of Ranger A. M. Srinivasulu Naidu to the III Circle is cancelled.
On relief of the Talamalai Range he is granted 4 months leave on average pay.
Supernumerary Ranger S. Narayanaswamy Iyer on return from leave is posted to the charge of the Sholavandan Range Madura district in relief of Ranger C. Thiruvengadam Pillai proceeding on leave on Medical Certificate.
- 16—12—30. M. R. Ry., N. S. Eswara Ayyar, Ranger VI Grade from V Circle to III (Working Plan) Circle on relief of

Palani Range charge Madura Dt. vice Ranger U. Vriddachalam Pillai transferred from the III (Working Plan) Circle to fifth Circle.

- 28—1—31. Mr. B. Coates, Ranger V grade, is posted to South Coimbatore in place of Ranger Vrithachellam Pillai transferred from III Circle.
2. M. R. Ry., U. Vrithachellam Pillai, Ranger V grade transferred from III Circle is posted to charge of Kodamady Range, Tinnevely District.
3. M. R. Ry. K. R. Viswanatha Ayyar, Ranger III grade, in charge of Kodamady Range is transferred to II Circle and should report for duty at Diguva Metta, Kurnool South.
- 11—2—31. M. R. Ry. A. N. Ponniah, Ranger VI Grade is granted an extension of leave on half average pay on medical certificate for six weeks with effect from 5th February 1931.
- 17—2—31. A. Krishnamachary, Ranger II Grade, will hold additional charge of Kodamady Range, Tinnevely District and relieve Ranger Anantharama Ayyar of his additional charge of Kodamady Range.
- 26—3—31. M. R. Ry. C. Tiruvengadam Pillai, Ranger V grade, on expiry of leave granted is posted to charge of Kodamady Range, Tinnevely District.

Sixth Circle.

- 8—12—30. M. R. Ry. C. Vasu, Ranger V grade, transferred to the Sixth Circle, is posted to the charge of Udipi Range, vice Ranger C. S. Ganapathi transferred to III (Working Plans) Circle.
- 9—12—30. Mr. K. P. Benjamin, Ranger I grade, transferred from the Forest Utilization Office is posted to the charge of Uppinangadi Range, South Mangalore division.
2. M. R. Ry. S. V. Doraiswami Ayyar, Ranger, VI grade, on relief by No. 1, is posted for special duty under the Dt. Forest Officer, South Mangalore.
- 29—1—31. Ranger M. V. Ganesan is granted leave on average pay for one month with effect from 16th January 1931.
- 3—2—31. M. R. Ry. M. M. Mandanna, Ranger VII grade, is transferred from Mudumalai Range, The Nilgiris division, to Nilam. To join at once.



14—2—31. Mr. A. Joseph, Ranger VI grade, is granted extension of leave on average pay on medical certificate for two months from 27th January 1931.

7—3—31. M. R. Ry. Kunhiraman Menon, Ranger VI grade, on return from leave on 26th March 1931 is posted to the charge of Mudamalai Range, the Nilgiris division.

2. M. R. Ry. K. R. Krishnan Nair, Ranger II grade, in charge of Mudumalai Range, on relief by No. 1 is posted to the charge of Bolampatty Range, Palghat division.

3. M. R. Ry. M. Rama Rao Kini, Ranger V grade, in charge of Bolampatty Range, on relief by No. 2, is posted to the charge of Mangalore Range, North Mangalore division.

8—3—31. M. R. Ry. M. V. Ganesan, Ranger VII grade, is granted leave for three months from 16th January 1931.

2—3—31. M. R. Ry. K. Chaikku, Ranger VI grade, is granted leave on average pay for 4 months from 8th April 1931. He is permitted to prefix the Easter holidays to his leave.

NOTICE.

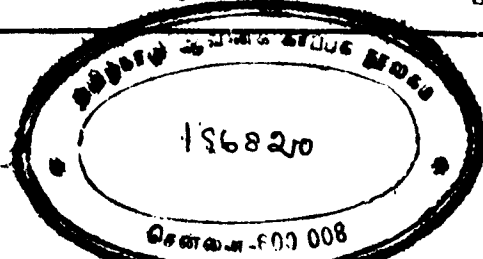
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