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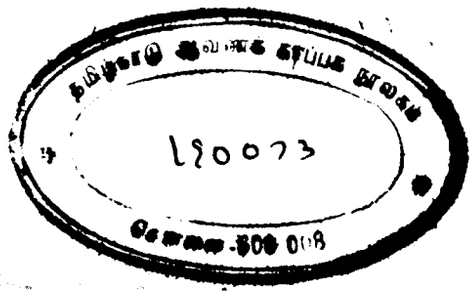

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Madras Forest College Magazine.

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Vol. XV. **DECEMBER 1930.** **No. 2.**

Forestry in Madras.

An Address by R. D. Richmond Esq., I. F. S.,
(Chief Conservator of Forests, Madras)
given at the Rotary Club Meeting, Madras.

Mr. R. D. Richmond, Chief Conservator of Forests, delivered an interesting and instructive address on Forestry in Madras, on the afternoon of 19th December, 1930 at the weekly meeting of the Madras Rotary Club held at the Gynmkhana Buildings.

Mr. Richmond began by saying that it was not an easy thing to fix the date on which forestry was first regarded seriously in this province. A forest department was first formed in 1856 but for a very long time before that date the forests of South India were of considerable importance in connection with the supply of teak for the Bombay Naval shipbuilding yards and the gun carriage factory. But as they went on and no thought having been given to the future, teak became hard to obtain and it was

this increasing difficulty which led in the forties to the commencement of the famous Nilambur teak plantations in Malabar. These plantations probably now constituted the most valuable forest property in the world.

The speaker then paid a tribute to the work of Dr. Cleghorn, Jogo and Turnbull in the department in its earliest years. It was in 1881 that the forest act was passed and he believed that a forest conscience was of slower growth in India than it was in other parts of the Empire which had adopted a forest policy long after India had done so.

Proceeding, Mr. Richmond said :—

" Following the preoccupations in respect of finding teak for the Dockyards was a period of activity in setting aside areas for the supply of wood fuel to the Railways and it is curious that it was not realised until much later that the public at large should be protected in respect of their timber, fuel and other demands upon the forest. This at last realised, there was feverish activity, so far as a very limited staff allowed of, in reservation, survey and settlement which continued until the early years of the country. Some forestry was practised in the meantime, makeshift arrangements were in force for the provision of produce and the realisation of revenue, but the main problems had not yet been tackled. Principally in connection with fuel supplies for the railways, but also for other purposes, considerable areas of casuarina plantations had been formed to be given up some twenty years ago as it was thought that this activity might well be left to private enterprise, while the beautiful woods of the Nilgiris had been saved from destruction by the formation of plantations of exotic species. This is perhaps the most striking item in the work of the early days of the department. The aesthetic

value of the "sholas" remains and the Nilgiri towns enjoy a more ample and cheaper wood supply than any other hill stations in India.

Revenue value of Forests.

" As indicative of the direct value of forests to a country it may be mentioned that the gross revenue so derived over the whole of India and Burma in 1926–27 was four and a half millions sterling and the surplus revenue was two millions. From the earliest days the forests of Madras have paid their way. In sixty years there has been only one in which revenue has not covered expenditure and the forests of the Presidency have, in some fifty years, produced a total net revenue of 252 lakhs. The surplus has never been very striking; Rs. 15½ lakhs in 1919–20 was the highest, when there followed a number of comparatively lean years, one reason for which was the considerable rise in pay and wages following the war. But in the last two years there has been a very marked recovery, to a surplus of over Rs. 15 lakhs and although nothing very spectacular may be expected, this surplus, 130 times greater than it was 50 years ago, will steadily increase, as will the value of the forests, not only as a money-making factor but as a many sided and invaluable asset to the country.

" Fifty years is a short time in the life of a forest, but in that period much has been accomplished. A property degraded by centuries of misuse, has gradually been improved and is being brought to a condition at which it can be made the fullest use of. It is commonly supposed that with the increasing use of metal the consumption of wood decreases. Such is not the case. The world's consumption of wood per capita is higher to-day than it was thirty years ago. Much, it is true, is devoted to paper

making—the increased use of paper is a sign of expanding civilisation—and a world shortage of soft woods is predicted on this acccount; but as countries develop and a higher standard of living is attained, wood and more wood is required for better class dwellings and so on.

" It is the duty of the forester to see that the property entrusted to his charge is made the fullest use of, to ensure that the people are able to obtain their requirements with the least inconvenience and, above all, to see that the principle of the sustained yield is not deviated from. The forest represents the capital, what that forest puts on in growth in one year is the interest, which alone it is permissible to remove. But before it is justifiable to work a forest, it is necessary to know what kind of trees it contains and at what rate the trees grow, to devise the best methods of working with due regard to replacing the tree crop removed and to consider the difficulties of extraction and the prospects of marketing. It is only within the last few years that the staff, the means for doing this essential work, has been available, leading to the longest step forward yet taken in the development of forestry in the Madras Presidency. Similarily, steps have recently been taken to undertake sylvicultural research, to ascertain by centralised enquiry and experiment how best and cheapest to establish crops of the large number of different kinds of useful trees which occur—the teak, the rosewood the sal, the sandalwood and a host of others. Some of you here may not be aware of the importance of the sandal tree to this Presidency. An insignificant tree, a parasite on its neighbours, it is responsible for an annual revenue of some Rs 10 lakhs and what with its ailments and vulnerability to theft is a source of perpectual anxiety. Among other post war efforts have been those towards utilising kinds of wood hitherto little used and working types of forest hitherto considered inaccessible—in fact research on an industrial side has been undertaken. Results many of them of a negative nature, have been obtained, much useful information has been collected, but the value of the timber extracted is too low to cover the cost of extraction and the class of intensive working involved by the use of machinery is unsuited to the hill forests of the West Coast. But a promising method of working is now being evolved and profitable exploitation is in progress. On flat ground the elephant will beat the machine while, on the hills, man-power has established its superiority over other motive agencies. Saw-milling by Government agency has been tried and abandoned: it is probable that such enterprises should be left in private hands.

Wooden sleepers for Railways.

" Another development of the last few years has been the supply of Railway sleepers, the number so supplied increasing annually. Not more than 44 per cent of the sleepers used on the 40,000 miles of India's railways are of wood (I believe the total number of sleepers is some 63 million) and the use of metal is increasing, but there can be no doubt that the southern railways will always require wood to the full extent of the ability of Madras to supply it. Unfortunately, a project to render the less valuable timbers suitable for use as sleepers by preservative treatment came to nothing; a plan for the experimental manufacture of three ply wood, which is so largely imported, sharing the same fate.

" 'The forests of the country are badly distributed; very naturally they are principally confined to the hills and to land unfitted for agriculture; costs of production are high, leads by railroad are long and timber imported by water is able to compete successfully in many places with that

produced locally. And many of the main users of wood fail to appreciate the fact that our own teak is, if anything superior to that imported from Burma (to a value of some Rs. 80 lakhs a year) while a large number of the other kinds of timber are suited for a number of purposes to which the more expensive teak is at present devoted.

" Apart from timber, the forests supply the population with agricultural implements, fuel, leaves for manure, and grazing. Last year 20 million cubic feet of timber and fuel were exploited and grazing, at purely nominal fees—as low as 3 annas per cow per annum in some cases—was provided for nearly two million head of cattle. With the denudation of areas excluded from reservation, and of the private forests, the demands upon the reserves become more and more intense and it is the aim of the Department to increase, so far as funds and staff permit, the productivity of the forests in its charge. The people must be afforded a legal means of obtaining what they require.

Marketing of Forest Products.

"Something, too, has recently been done to improve the marketing of the great number of minor products—gums, canes, tanning and other barks, oils, flosses, fruits and so on—which the forests provide; while lac, the source of considerable revenue elsewhere, has now been introduced into several centres. But a great deal remains to be done. The mixed nature of the forest the large number of species occurring and transport difficulties all operate to the disadvantage of forest industries such as match and pencil making and the manufacture of paper. It has been said that the bamboo of India and Burma are able to supply the world's need in paper and it has been shown that an admirable paper can be made from this source. Arrangements have been made for the supply of paper to a private company in the presidency and it may be hoped that paper-

making from bamboo may soon be a locally estabished industry.

" If some stress has been laid upon the financial and direct aspects of forestry it must not be supposed that the indirect benefits are not of the first importance. Without forests a country, particularly a tropical country cannot exist. The reduction of countries to desert condition owing to the destruction of its tree growth has been apparent in many instances.

Effect on Water-supply.

" The effect of forests upon the water-supply of a country must be obvious, as is their function in the regulation of the run-off, the silting of rivers and the prevention of floods. Unhappily the results of neglect are slow in showing themselves, but one is personally aware of the gradual and progessive silting of the Godavari mouths, of silted rivers being unable to contain their flood water, of a river used not a century ago for floating our teak on its way to the Bombay dockyards no longer possible for such a purpose; while the repeated wash-aways of the Nilgiri road and railway in the last few years are due to one cause only, as is the repeated interruption of the East Coast Railway over a number of years. The forests of Madras protect seven million acres (and the consequential revenue of cultivable land under major irrigative works alone.) This aspect of forestry, and the need for afforesting important catchment areas, is generally overlooked and though its value in this regard is difficult to assess in rupees it is great indeed. It is an aspect, which is in many respects more important than finance and it is this, which makes forestry essentially an affair for the State. The financial side is important—every forest must be worked to its fullest capacity and must be perpetuated, working must be on the most economical lines, the people must be provided with

their requirements, but the other objects served by forests should never be overlooked.

"The area of reserved forests now left in charge of the Forest Department is 15,500 square miles; so that the average area in charge of a district or division is so much as 550 square miles while some are for greater extent. This is a more than sufficient task for any one man even if considerably less than the 1,700 square miles I wandered round and round—unable to do much more—as one of my first district charges. Increases of establishment there have been, as a result of years of struggle, but the staff is on none too generous lines now and when one recalls how difficult it is to protect the small confines of our own gardens, it is easily realised what is the task confronting a small protective staff expected to prevent theft from over 15,000 square miles, enclosed in 26,000 miles of boundary and in the immediate charge of only about 1,500 forest guards.

Education in Forestry.

"Forest education has not been forgotten. A school for the education of the lower ranks was instituted at Dehra Dun some fifty years ago. Until a few years ago the officers of the Department were trained in Europe first in France and Germany, and from 1887 in England; but there is now a course of training at Dehra Dun. A Forest College was established at Coimbatore in 1913 and is responsible for the training of the Rangers of Madras, the neighbouring provinces and Indian States.

Time prevents mention of the aesthetic side of forestry its appeal to the lovers of natural history, of the fauna and of the wild. The life of a forester in India may be hard, he is faced with continued difficulties and discouragements but few of us I think would choose a different career had we to start in life again."

With a vote of thanks to the speaker the meeting terminated.

—The Hindu; Dec. 20, 1930.

Our Swimming Competition Day.

Every year this competition is held at the Nedungayam camp and a medal is awarded to the fastest swimmer. It was rather unfortunate that the Juniors could not take part in this competition being then at the Top Slip camp.

It was on the 14th December 1930 that we had our swimming competition at 3–30 P. M. As it was not possible for all of us to complete the competition course, 150 yds. (some of us being absolute beginners), we were split up in 3 groups—competitors for the prize, medium swimmers and beginners.

At the sound of the whistle the first group, consisting of more than half the strength of the class, who were made to stand in the same time, by the boat, for the start, splashed into the water to show their respective skills to qualify themselves for the coveted golden prize. A boat followed the competitors to help them at the time of emergency. It was not till 2 minutes and 50 seconds had passed that H. Sen. Gupta (Bonai State), with his right hand side stroke touched the goal, thus qualifying decisively for the prize. Rewa students, Amarjit Singh and C. H. Pande, with the back strokes, were next to claim the 2nd and 3rd prizes respectively.

The course for the second group was to cross the stream, which is about 110 ft. A similar start was given. M. Haq (Hyderabad) with his over-arm stroke was first to to reach ths goal in 50 seconds, followed by A Hamid (C.P.) and G. S. Deb (Bamra State).

Next was the beginner's competition. The course of about 50 ft. was selected in the neck-deep water, and a similar start was given to them Harbans Singh (Indore State) with his trudgeon stroke, touched the goal first, second being Ghousuddin (Hyderabad).

Then came the most interesting thing of the day—Water polo match between States and Provinces. As in the other items, states showed its superiority over the Provinces by defeating them by 2 goals to 1, thus winning the day, completly.

Very shortly afterwards, our Principal and Mrs. Wrench, soothed our chill and tiresomeness by very kindly entertaining us at tea.

—*Harbans Singh (Indore State).*

The Annual Athletic Sports, Madras Forest Coliege, 1930.

The sports this year took place on Wednesday, October 29th, after having been postponed on account of rain. No official invitations were re-issued after the postponement, and the sports were a quiet and private occasion.

Our best thanks are due firstly to Mrs. Whitehead who kindly gave away the prizes, and secondly to all those gentlemen who helped as judges during the afternoon.

In spite of the heavy state of the ground after the rain some good performances took place and our congratulations are due to the following:—

M. Ishaque who won the Richmond cup quite easily and who also broke three records, the high jump, hundred yards, and hurdles.

R. R. Singh who was runner-up for the Richmond Cup and also broke the ¼ mile record.

S. Moinuddin who tied with Ishaque in beating the High jump record.

This year several changes took place in the sports:

(1) The past students' quarter-mile was cut out owing to lack of support in the past. (2) The obstacle race was cut out as it is an expensive race to the club, and

appears to serve very little useful purpose except to amuse the spectators. (3) A tug-of-war was introduced as it is one of the Grigg sports open events, and without training or practice it is difficult to get a team together.

With regard to prizes also, changes took place. Owing to the low financial state of the club each student subscribed Re 1 towards cost of prizes and the staff subscribed towards the Richmond cup miniature. In this way it was found possible to give a cup for first prize and a medal for second prize in all the important events, while not giving prizes for the tug-of-war, sack-scrimmage, relay-race.

The following are the results:—

I. *100 Yards Race*:—

1st M. Ishaque — 10 3/5 sec. (College record)
2nd G. S. Deb.
3rd R. R. Singh.

II. *High Jump*:—

1st Tie: M. Ishaque and S. Moinuddin — 5 ft. 1½ in. (College record)
3rd M. A. Pathan

III. *Quarter mile*:—

1st R. R. Singh — 57 2/5 sec. (College record).
2nd M. Ishaque.
3rd G. S. Deb.

IV. *Throwing the cricket ball*:—

1st G. P. Tiwari — 86 yards., 1 ft., 3 inches
2nd V.N. Sharangayani — (College record 94 yds. 2 ft.).
3rd Harbans Singh.

V. *120 Yds. Hurdles*:—

1st M. Ishaque — 18 2/5 sec. (College record)
2nd S. Moinuddin,
3rd R. R. Singh.

VI. *Half mile Race* :—

1st R. R. Singh. 2 min. 30 sec. (College
2nd M. S. A. Khan record: 2 min. 23 sec.)
3rd S. Moinuddin.

VII. *Mile* :—

1st R. R. Singh. 5 min. 47 sec. (College
2nd M. S. A. Khan. record 5 min. 27 1/5 sec.)
3rd H. P. Sanap.

VIII. *Long jump* :—

1st M. Ishaque. 18 ft. 4½ in. (College
2nd Abdul Hamid. record 18 ft. 2 in.)
3rd R. R. Singh.

IX. *Invitation half mile* :—

1st Narayanasami (Peelamedu High School)
[2 min. 18 3/5 sec.
2nd Tims. (Stanes High School).
3rd Alridge. Do.

X. *Peons' 100 Yards* :—

1st Syed Alivi. (Club peon)
2nd Alivi. (I Senior Instructor's
[peon)
3rd Mohammed (Daffadar)

XI. *Servants' 100 yards* :—

1st Achuth.
2nd Perma.
3rd Majid.

XII. *Relay Race* :—

1st States.
2nd Central Provinces.
3rd Bombay.

XIII. *Sack Scrimmage* :—

1st H. Sen Gupta.

XIII. *Tug-of-war* :—

States A. Captained by P. M. Tuggerse, beat States B., captained by H. Sen Gupta.

A. L. GRIFFITH,
Vice President, Athletic Club.

EXTRACTS.

I. Dhupa Kernels : (*Vateria indica*) :—

Dhupa Kernels were sent by the Industrial chemist, Government Soap Factory Bangalore, in January 1930, with a request that they might be examined as a source of fat, in connection with a proposal to install extraction plant for preparing Dhupa fat at Bangalore. The sample consisted of broken pieces of *Vateria indica* kernels which were hard and brittle and had a faint, pleasant aromatic odour. They were light to dark brown in colour, some pieces being tinged with purple.

The kernels as received were found to contain 7.6% of moisture. On extraction with light petroleum (boiling point 40°—60° C.), the solvent generally used for laboratory determinations, they yielded 21.4% of fat, equivalent to 23.2% expressed on the moisture free kernels. The fat so obtained was greenish white, had a very slight odour and was fairly hard.

• • • The residual meal left after the extraction of the fat was light brown and had a strong bitter taste. It contained a low percentage of proteins and it would therefore have only a low feeding value. On account of this

and the bitter unpalatable taste, it would not be suitable for use as a feeding stuff and could only be employed as a manure.

—*Bulletin of the Imperial Institute, Oct. 1930.*

2. **Tanning materials of South India.** (Hopea parviflora):—

In connection with the work being carried out on tanning materials at the Leather Trades Institute of the Department of Industries, Madras, a series of *Bulletins* is being issued by the Department * * * An account of the examination of the bark of *Hopea parviflora* as a tanning material by K. Seshachalam Choudary, and E. Yoganandam, Leather Research Chemist, and Senior Assistant Chemist respectively at the Leather Trade Institute, is given in *Bulletin* No. 27.....

Samples of 'half-dried' and 'well-dried' bark of *Hopea parviflora* from Puthur Range, S. Mangalore, containing 8.3 and 8.6% of moisture respectively, were examined, and found to be considerably richer in tannin than those previously examined. The following are the percentages of tannin calculated on the dry material: Branches, 21.57; Trunk A. 22.8; Trunk B. 20.27; Tounk C. 21.20. There was therefore little difference in the bark from various parts of the tree.

Infusions of the bark do not rapidly undergo loss of tannin owing to fermentation, on standing, the loss after 30 days being only about one-third of that suffered by a divi-divi-infusion, under the same conditions. The speed diffusion, and consequently rate of diffusion into the hide, is, however considerably less than that of other S. Indian tanning materials. The ratio, tannin to soluble non-tannins, is particularly high, viz. 4.3, as against 2.5, for myrobalans and wattle bark, the next highest of S. Indian materials, thus allowing of the preparation of a very concentrated solid extract, containing as much as 66% of tannin. The

solid extract is brittle, like chestnut extract, and unlike that of divi-divi, may be easily powdered.

Small factory scale experiments were carried out with a view to determining the possibility of using *Hopea parviflora* as a substitute for Avaram and Wattle barks by Madras tanners. Using mixtures of myrobalans and *Hopea parviflora* satisfactory results were obtained.....

—*Bulletin of the Imperial Institute*. Vol. XXVIII No. 2.

3. **Biochemical Studies of Spike Disease of Sandal:**

Mr. M. Sreenivasaya and Mr. B. N. Sastri have continued their very detailed investigations into the spike. disease of sandal (*Santalum album, L*), and their latest results are to be found in the *Journal of the Indian Institute of Science*, Vol. 12 A, Part 17, pp. 233 to 252 (1929). Leaf-juice from a sandal tree infected with the spike disease hydrolyses more soluble starch than does the corresponding healthy juice. This is due to a higher concentration of the enzyme and to the presence of activators such as phosphates and amino acids. The pH of spiked leaves is lower than that of healthy leaves, and approaches the optimum for diastatic activity. More potato starch is, however, liquified by the healthy leaf extract than by the diseased extract for equal weights of sugar produced, thus suggesting a qualitative difference between the two diastase extracts. It should be remembered that Dr. L.C. Coleman found that there was lower diastatic activity in spiked leaves than in healthy leaves, and therefore the results here reported might be interpreted as showing that the diastase content of diseased tissue fluctuates within the same limits as does that of healthy tissue.

The chemical composition of leaf and stem tissue fluids has also been investigated. The spike-diseased leaf contains more nitrogen, maltose, and reducing sugars and less ash (particularly calcium) than the healthy leaf. The

stem fluids of spike-diseased trees are richer in nitrogen, phosphorous, and calcium than those of healthy plants, and there is a steep gradient of calcium concentration between the stem and leaves.

The seasonal variations in composition of healthy and partially spiked leaves of the sandal tree have been studied by Mr. A. V. Varadaraja Iyengar (*Jour. Ind. Inst. Sci* Vol. 12 A, Part 20, pp. 295–305). Season was found to affect the chemical composition of the leaves of both healthy and spiked plants in the same manner. The following relative differences were observable in all seasons —the diseased sap had less dissolved matter, less osmotic pressure, a greater electrical conductivity, more moisture, ash, and nitrogen contents, less calcium and was more acid than healthy sap.

These detailed studies of sandal spike from the *Indian Institute of science* have considerable significance, for it has recently been shown by Mr. M. J. Narasimhan, (*Phytophathology*, 18, pp. 115–817; 1928) that inclusion bodies similar to those which characterise certain virus diseases are present in leaf tissues of spiked plants. This, along with the work of Dr. L. C. Coleman on transmission, suggests that the malady is caused by a virus We have thus a mine of detailed information on the chemistry of a diseased host which we can use in the elucidation of the problem of the nature of a plant virus.

—Nature, June 14, 1930.

4. Resiliency of Wood :

Through the years since the beginning of railroad construction no satisfactory substitute has been found for the combination of wood ties and steel rails. The same combination is true of automobile body construction.

A well-known motor car company has recently made tests to determine the superiority of wood-and-steel as

against all-steel for body construction. Two bodies selling from similar price-fields were selected, each being securely fastened to a platform inclined at an angle of 90 degrees, thus making the pull of gravity diagonally through the body. Another platform was placed on the roof rail of each body, and on this platform 90 sand-filled sacks to the total weight of 9,000 pounds were placed, the weight pressure diagonally through the bodies straining their structural strength to the limit.

The all-steel body was wrenched 11 inches out of the normal, glass shattered, doors jammed, every body pillar buckled, in fact, the body was a total wreck entirely beyond possibility of repair.

The wood-and-steel body under the same test was deflected from the normal only 4 inches; of all the glass the windshield only was cracked, doors opened and closed easily, and when the load was lifted the body returned to within one inch of the normal, and was placed in good repair within twenty-four hours.

Thus wood has more than eight times the ability of steel to return to normal after severe strain.

—Forest and Out-doors, November 1930

5. The Prickly-Pear Cochineal :

Its Utilization for destroying Cactus in South India.

By Rao Sahib Y. Ramachandra Rao, M. A., F. E. S.,

Government Entomologist, Coimbatore.

Destruction of cactus in Australia.—In Australia, where prickly-pear is a very serious problem, owing to its invasion of vast stretches of virgin land, various methods of destructions have been tried. Of these found efficient, the destruction of cactus by the injection or spraying of arsenical solutions is one, but under South Indian conditions the cost is rather prohibitive, and labour being

available, cutting out the pear by hand would probably be cheaper and more efficient. Secondly, various insect pests and diseases found attacking cacti in Mexico and South America have, with due precautions, been introduced into Australia with remarkable success. One of the insects thus introduced is a wild cochineal, *Dactylopius opuntiae (tomentosus)* which has been found very effective on two of the pears *Opuntia dillenii* and *Optuntia nigricans*, the two kinds most common in South India.

This cohineal was imported into Ceylon from Australia in 1926—7, and thence it appears to have been conveyed in 1928 by private agency to the environs of Tuticorin in Tinnevelly District. When gradually news as to the efficient manner in which masses of prickly-pear had been killed at Tuticorin spread among the cultivators, they began to carry the insect from village to village, so that at the present time the cochineal is found not only in the various parts of the Tinnevelly District, but also distributed in various centres in Districts of Ramnad, Madura, Trichinopoly, Tanjore, Salem and Coimbatore. The latest information is that it has also been conveyed to parts of Northern Circars and Ceded Districts.

The Cochineal Insect.—The cochineal is a small insect belonging to the class of Mealy-bugs. It is dark purple in colour but presents a whitish appearance being marked by dense waxy covering of bright white colour. The insect is possessed of tubular mouth parts, by fixing which in the tissues of the pear it sucks up the juice of the plant. Each female bug is able to produce a hundred or more young ones in the course of a month. The young bugs are very active and are able to travel from one joint to another, and similarly also from one clump of cactus to a neighbouring one in search of succulent tissues and thus spread the infestation. When the young bug has fixed

itself somewhere. it does not shift its place usually. It feeds and grows until it becomes mature in about 4 to 5 weeks. The bug is able to multiply rapidly, so that before long the infestation increases to such an extent that the cactus clump looks as if covered with whitewash. The clumps are killed usually in about 12 to 18 months.

How to introduce the Cochineal.—It is quite an easy matter to carry the cochineal from one place to another. Care should be taken to select only joints bearing fairly mature bugs; they should be carefully cut out and loosely packed in a basket or dealwood box, and can thus be conveyed in a cart to neighbouring villages, or sent by rail even to distant destinations. To infest fresh cactus, one has simply to tie some of the infested joints on to them, taking care to choose a comparatively shady situation for the purpose. The only precaution needed to be taken is to avoid a time of heavy rain or extreme heat for its introduction Wherever the prickly-pear hedges are continuous the insect will spread of its own accord from plant to plant but if the clumps are isolated or scattered, it would be necessary to infect each clump separately to induce quick results.

Replacement of cactus hedges by other plants.—In certain villages the prickly-pear has justly been considered a boon by the cultivators owing to its efficiency in preventing cattle trespass. There is, therefore, a section of the agriculturists who are averse to the extermination of cactus. If, however, the cochineal happens to be introduced into some portion of the village, it is impossible to prevent it from spreading to all the cactus in the neighbourhood sooner or later. It is, therefore, wise to have the cactus replaced as early as possible by some other indigenous or introduced hedge-plant, of which there are many. One of them is *Commiphora (Balsamodendron) berryi*—Tamil ;

Mullukkiluvai, Telugu; Chilla Kampa) a plant which forms an efficient and permanent hedge, thought rather slow of growth: *Agave wightii*—which is known to function as an efficient quick hedge: *Euphorbia antiquorum*—(Tamil: Chadurakkalli, Telugu; Bommu jamudhu), is another good substitute; some kinds of Acacia can also be grown as a thick hedge, if sown thick; also *Prosopis spicifera*—(Tamil; Vanni, Telugu: Jammi) will form a good fence if sown thick and kept trimmed.

—*The Madras Agricultural Journal, Jan: 1931.*

6. Ensilage:

In summarising the results of digestibility, trials conducted on Indian feeding stuffs such as green oates, green maize, oat hay, etc., (see Memories of the Department of Agriculture in India Chemical Series:—Vol. X No. 7—'30), Dr. P. E. Lander D. Sc. Government Agricultural Chemist Punjab, and Pandit Lal Chand Dharmani, L. Ag., B. Sc. (Agri) Agricultural College, Lyallpur, express the opinion that for purposes of preserving fodder for times of scarcity and famine the trials have clearly indicated that both the terms of composition and digestibility it is better to ensilage the green fodder rather then convert it into hay; and that the ensilaged material also proves more attractive to the animals than does the hay. These conclusions accord with those of agricultural chemists elsewhere and are of value, being the results on trials on Indian feeding stuffs. If some of the Panchayat Forests in this Presidency, the better managed ones which have good pasture areas, can be trained to adopt the system of ensilage, during the months when green pasture and fodder are available in plenty to be sold during the months when the supply of fodder in the villages runs short and there is absolutely no pasture, they will be doing a real service to the villagers.

—"*Rural India*" *June 1930.*

7. Making Wood Fireproof:

The "Oxylene" method of fire-proofing wood consists essentially of submitting wood to a steaming and vacuum treatment in a cylinder by which the air and moisture in the pores of the wood are removed and the sap vaporized. The wood is then impregnated under hydraulic pressure with a solution of fireproofing chemicals which replace the elements driven out by the preliminary treatment. The wood is then dried by an air and kiln-drying process, which leaves the fireproofing solution in minute crystal form embodied in the fibers of the wood.

When heat is applied to the treated wood the crystals expand and form a glossy coating which excludes the oxygen of the air and prevents its combination with the wood. In consequence no spread of flame or fire through the medium of the treated wood can take place. The greater the heat the more the crystals expand, and although the crystals contiguous to the heat may in time become exhausted and the wood charred, fresh crystals come into action and sustain the fire-resisting effect of the process.

8. 100% Wood Utilization:

New Pacific Coast Industry Makes Super Insulation from Sawmill Waste.

Reclamation of a new wood product from materials which hitherto have gone up in smoke from the sawmill waste-burner is the accomplishment of the Fir-Tex Insulating Board Co., St. Holens, Oregon.

Fir-Tex is an insulation board composition made of chips, splinters and bark. The waste material is macerated, digested with chemicals and worked into a pulpy mass which is rolled out into dimension shapes, pressed between rollers and dried in kilns. The outstanding achievement is the manufacture of insulation material up to one and

one half inches in thickness without lamination. Two distinct products are being manufactured—Fir-Tex Super Insulation—a semi-rigid material of exceptional insulation and sound deadening qualities—available in non-laminated half inch to one and one half inch thickness- and Fir-Tex Insulation rigid building board and shiplapped lath, made full half inch thick.

The Fir-Tex plant at St. Helens, which covers over six acres and contains 149,612 square feet of concrete floor is modern in all its equipment and represents the efforts of a group of men who have given years to the study of insulation materials. The first unit has an annual output of 75,000,000 feet of Super Insulation material, building board and lath.

Equipment is Extensive.

Many features of the new plant, such as the huge rotary globe digesters for softening the chipped wood and bark, the specially designed board machine—largest ever built—an eight deck drier and other equipment on a big scale to facilitate quantity production, stamp the new mill as the most modern of its kind. A spur from the main railroad track has been laid through the center of the all-steel board storage building permitting cars to be loaded from both sides.

The new super-insulating board material is the creation of A. E. Millington and his son, C. A. Millington, who have had many years of technical experience in the development of insulation materials. For three years these men have been experimenting in a miniature plant, testing, revising and improving, until the resulting material fulfilled their demands. Tests made by the nationally known laboratories of the Robert H. Hunt Company, confirm

their claims that Fir-Tex is an outstanding insulation and sound-deadening material.

Because of the deep interest of these two men in research, a large laboratory, in which processes of manufacture are constantly studied is included in the Fir-Tex plant. The laboratory occupies the ground floor of a separate modern, two-storey office building.

Other buildings at the plant include a separate all-steel boiler house with 210 foot reinforced concrete stack a 99 x 100 foot all-steel board storage building, a pumping plant with a capacity of 4000 gallons per minute. The plant is equipped throughout with a fire sprinkler system and a water tower has 50,000 gallons capacity. Oil burners generate steam used in the battery of six 18-foot rotary globe digesters, having a capacity of 3000 cubic feet each in which the raw material is processed preparatory to shredding.

The softened material is emptied into conveyor pits and transported to the shredding machines which reduce it to a wood fibre of finest consistency. It is then pumped into the mixing tanks where the process is completed and the material made ready for the board machines. Into this machine the pulp comes at a proper thickness and, by a succession of rolls, it emerges as insulation board.

Scientific drying is the final step in manufacture. For this purpose a drying room has been built, having a capacity unequalled by any other insulation board plant. The drier has eight decks, 15 x 360 feet. Finished board as it comes from the drier is inspected, checked for color and weight, and cut to size.

—Canadian Woodlands Review, Dec. 1930.

COLLEGE NOTES.

1. *Arboretum* :–Seedlings of about three dozen species of botanical and silvicultural interest have recently been planted in the college arboretum.

* * *

Life subscription of magazine :—The prize awarded by Mr. R. D. Richmond, the Chief Conservator of Forests, Madras, to the best junior Division of 1929–31 batch was in the shape of a cheque for Rs. 50 towards "life subscription" for the Madras Forest College Magazine. Student H. Sen Gupta was the receipient of the prize.

* * *

2. *Change of camp for Senior Division* :—The Senior Division camped this year from 7–1–1931 to 21–1–1931 in "Silent valley" about 15 miles from Mannarghat, instead of at Dhoni. The ascent upto Neelikkal about 3000 ft. in a distance of about seven miles of bridle path is a stiff one.

The camp site (3400 ft.) is a grassy area surrounded by dense evergreen forests composed chiefly of Mesua ferrea*, Palaquium ellipticum, Poecilonueron indicum, Cinnamomum spp., Eugenia spp., Canarium strictum, Calophyllum elatum, Litsea spp., Oxytenanthera Thwaitesii, and Ochlandra Rheedii. The last species forms a dense growth especially near streams and in moist areas. Incidentally this reed was used in the construction of tha 'huts' for the camp.

* Railway sleepers of this species are being prepared in this range by the Forest department for supply to Railways.

3. *Examiners for 1931* :—The following are the examiners for 1931, for the subjects noted against them. Messrs.

R. S. Browne I.F.S. ...	... Working Plans.
D. M. Currie, B.SC., I.F.S.	.... Sylviculture.
M. S. Raghavan, B.A., M.F.S.	... Survey and Drawing.
G. C. Robinson, B.A., I.F.S.	.... Range administration.
T. V. Venkateswarier, M.A. M F.S.	.... Botany.
J. A. Wilson, B.A., I.F.S.	... Utilization.
E. S. Dawson, I.F.E.S.	.... Engineering.
C. R. Ranganatham, M.A, I.F.S.	Physical science.
Gopal Menon	.... First Aid.

4. *Y. M. C. A. Sports 1931* :—The athletic sports of the Y. M. C. A. were held on the Y. M. C. A. grounds on the 14th February 1931. We entered in twelve items and appeared in the final for eleven. With the exception of Hop-step and jump relay race, one-mile, and tug-of-war we were placed in every item. Though we have won the champion shield for the college and also the individual all round championship medal, yet, the performances by the various competitors were distinctly below the usual standard. This was to a great extent due to the lack of special training owing to camp and to the poor running ground which was small and very hot.

Much credit reflects on M. Ishaque Senior student who won the allround championship medal in this open districts sports. The following is the result of the sports:—

M. Ishaque (Senior)	100 yds.	I
	Hurdles	I
	Putting the shot	II
	Long jump	III
H. Sen Gupta (Senior)	Putting the shot	I
	Pole jump	II

R. R. Singh (Senior)	½ mile	II
	¼ mile	III
M. S. A. Khan (Senior)	Cross country race	III
G. S. Deb (Senior)	100 yds.	III

Moinuddin (Junior) Entered for Pole and high jump and ¼ mile; came second in quarter mile on the heats day. Although he promissed to do well he unfortunately cut his foot seriously in the ¼ mile heats and could not compete in the finals in any event.

This is the first time the Forest college has entered for these sports. I take this opportunity of tendering our heart felt thanks to the members of the staff of the college for the keen interest they take in the matter by physical and financial means. Our special thanks are due to the president and vice-president of the college athletic club for their endeavours to make us keen sportsmen and for having made as realise the truth of the motto "*Mens Sana in Corpore Sano*".

R. R. SINGH,
Sports Captain.

Solution of Puzzles.

The following solution for the puzzles published on page 34 of the September 1930 number of the magazine was sent by Mr. B. Venkata Rao, M. R. H., Range Officer Velgode.

(1) But-ton. = Button.
(2) Far-thing = Farthing.
(3) Madam.

Contributions to the Museum.

S. No.	Contributions.	Contributor.
1.	Tea chest made of (a) Cedrela Toona (Toon) (b) Phoebe Hainesiana (Bonsum) (c) Artocarpus hirsuta (Aini)	The Forest Economist, Forest Research Institute Dehra Dun.
2.	(a) Rosewood veneers on batten board and laminated cores showing construction. (b) Batten board core. (c) Laminated veneer core. (d) Eight hand samples of veneers on laminated cores. (e) Six specimens of 3 ply wood.	
3.	One model door in frame showing construction. The core is faced on one side with quartered laurel veneer and on the other with Poon in modern design.	

Additions to the College Library.

1. Fauna of British India, Coleoptera Vol. I.—By Malcolm Cameron.
2. Administration report of (1) Ceylon, for 1929, (2) Bombay Presidency for 1928—29.
3. Working Plan for the forests of Anantapur Forest Division 1929-30 to 1938-39.—By J. Sadasiva Iyer, B. A. C.
4. Indian Forest Records. Entomological series. Vol. XIV, parts V to IX.
5. Big game photographs from the Times;—By, M. Maxwell.

6. The structure and life of Forest Trees; By, B. M. Thomson.
7. Fauna of British India, Vol. I —By, Southwell.
8. Forest Research in India, 1928–29.
9. Inspection notes on the forests of Sriharikota island, Nellore District;—By, J. H.Longrigg, I. F. S.
10. Western Australia. Report on the operations of the Forest Department for the year ended 30th June 1930.
11. 'Scientific American' for 1928.
12. Sylvicultural Series. The Indian Forest Records Classification of thinnings.
13. Annual report on Working Plan and Sylviculture in Burma for the year 1929–30.
14. Veitch's Manual of Coniferae. Second edition 1900.
15. Illustrations of Conifers; By Clintan Barker (Two Volumes).

First Aid Call.

Mrs. Nurich (on phone): Hullo, hullo—is this Dr. Woodhead, the tree surgeon?

Voice. Yes, madam.

Mrs. Nurich: Hurry right over. That big oak has blown down and broken several of its prettiest limbs. Do hurry.

Voice: Very well, madam, I'll be right over.

Mrs. Nurich: Is there anything I can do till you arrive?

Voice: Just keep the patient quiet, madam.

Mrs. Nurich: Anything else?

Voice: Yes, be sure you have some hot water to sterilize my instruments.

Mrs. Nurich: How about bandages?

Voice: I'll bring those.

Mrs. Nurich: And a nurse to administer the anaesthetic?

Voice: Of course, Now, madam, just keep calm and it will soon be—

Mrs. Nurich: I'll try to Doctor. But please hurry. And say—

Voice: Yes madam.

Mrs. Nurich: I almost forgot. Better bring old Doctor Brown with you. My husband is under the tree.

—Asia Kagowan in Life.

A Song of Jewels.

By Mary Black Diller.

Come to the forest!
Here the gems that sleep
Within the casket of the earth
Come to the light,
Because the Autumn's golden key
Releases them.
The topaz gleams upon a maple tree,
And rubies glow within the oak's notched leaves,
While shadows wrought of amethysts
Trace their designs amomg the ferns
Vermilion bittersweet,
And garnet drops of berries
Trail from their emerald vines,
Above the lake, which like an opal lies
Below the turquoise skies
A diamond is the waterfall,
Upon the moss-grown rocks of jade,
Arrayed
In siver mail the birch tree stands,
Where coral ivies clamber,
Now every chestnut leaf becomes a sword
Of jagged amber
Piercing the golden mantle of the sun,
Which wraps the forest in its glinting folds.
O, Gems, which slept within the earth,
Let Autumn set you free
To glorify each vine and weed and tree!

—Forest and Out-doors—November, 1930.

Gazette Notifications.

14—10—'30. Mr. Rameshwar Sahai, A. C. F., on completion of his tour in the L. Godavari Division posted to the Buguda Range, Ganjam Division for range training.

Mr. M. C. Chandy, E. A. C., leave on average pay for two months and one day, followed by leave on half average pay for 13 days from 10-10-'30 or date of relief. He is permitted to avail himself of the Xmas and New Year holidays.

28—10—'30. Mr. J. Coode, D. C. F., on return from leave to be Assistant to the D. F. O., Nilambur.

The services of Mr. H. E. Brown, E. A. C., of Forests, are placed at the disposal of the Chief Commissioner, Coorg, *vice* Mr. C. M. Kushalappa, E. A. C.

Mr. M. H. G. White appointed A. C. F. of Forests, is attached to the S. Coimbatore Division.

4—11—'30. Mr. T. A. Whitehead, Conservator of Forests, V circle, leave on average pay for eight months, with effect from 7-2-1931, or date of relief.

Mr. A. Banerji, A. C. F., on relief of the Puthur Range, attached to the S. Mangalore Division.

Mr. V. S. Krishnasami, A. C. F., to charge of Kannoth Range, Wynaad Division.

11—11—'30. Mr. A. R. Narasimha Ayyangar, E. A. C., on return from leave, attached to the Madura Division.

18—11—'30. Mr. M. H. Krishnasami, E. A. C., on return from leave, to be Asst. Working Plan Officer, Ootacamund.

25—11—'30. Mr. H. P. Ward, Forest Utilization Officer, leave on average pay for 8 months with effect from 12-4-1931 or date of relief.

M. R. Ry. M. Sreenivasa Raghava Acharya Avl., E.A.C., of Forests, leave on average pay for 8 months with effect from 7-12-'30.

2—12—'30. Mr. R. B. Cornwell. D. C. F., on return from leave to be attached to the III (Working Plans) circle with headquarters at Coimbatore for duty in connection with the Mt. Stuart Working Plan, until 31st December 1930, and thereafter to be Working Plans Officer, Upper and Lower Godaveri Divisions with head quarters at Cocanada.

9—12—'30. Mr. C. M. Kushalappa, E. A. C., of Forests, Coorg, on relief by Mr. H. E. Brown, granted leave on average pay for four months.

16—12—'30. Mr. J. Coode, D. C. F., granted extention of leave on half average pay (not due) for five months from 13th December 1930.

Mr. M. C. Chandy, attached to Nilambur Division *vice* Mr. Saiyyid Riazuddin granted leave.

Mr. E. A. Lasrado, D. C. F., leave on average pay for 6 weeks from 3-1-'31.

Mr. Rameshwar Sahai, A. C. F., extension of leave on half average pay for one month and 9 days from 24-1-'31

Mr. Md. Abdul Hafiz Sahib, E. A. C., on return from leave attached to the V circle with head quarters at Coimbatore.

23—12—30. The Head Quarters of Mr. R. B. Cornwell, D.C.F., during the period when he is attached to the III (Working Plans) circle, will be Ootacamund instead of Coimbatore.

Mr. V. S. Kuppusami, Asst. Forest Utilization Officer granted leave on average pay for one month from 2-3-1931.

The grant of leave to Mr. C. M. Kushalappa, E. A. C., is cancelled. On relief by Mr. H. E. Brown he will be attached to the Wynaad Division.

6—1—'31. Mr. J. H. Longrigg, D. C. F., on return from leave to be D. F. O., Ananthapur.

Mr. J. A. Wilson, D. C. F., and Officiating Forest Engineer, will on relief by Mr. E. S. Dawson, be attached to the Forest Engineer's Division until 15-1-1931 and thereafter to the Forest Utilizatiou Officer's Division with headquarters at Coimbatore until further orders.

Mr. K. A. Chengappah D. C. F., on return from leave to be D. F. O., Central Salem.

Mr. W. C. Hart, E. A. C., on relief by Mr. Chengappah to be D. F. O., S. Salem.

Mr. N. Tirumurthi, D. C. F., Ananthpur on relief by Mr. J. H. Longrigg to be D. F. O., U. Godaveri.

M. R. Ry. Rao Sahib K. G. Belliappa Avl., E. A. C., D. F. O., U. Godaveri on relief by Mr. N. Tirumurthi, to be D. F. O., Kurnool East.

Mr. M. C. Chandy E. A. C., on return from leave is attached to S. Coimbatore.

Mr. W. H. Woodhouse Adolphus E. A. C., on relief by Mr. W. C. Hart attached to the Fourth Circle with Head Quarters at Salem.

13—1—'31. Mr. W. H. Woodhouse Adolphus E. A. C., on relief by Mr. W. C. Hart is attached to N. Salem Division.

20—1—'31. Mr. O. H. C. Shelswell, I. F. S., Personal Asst. to the Chief Conservator of Forests, leave on average pay for four months and on half average pay for five months and eight days from 16-3-1931.

Mr. R. B, Cornwell, D. C. F., will continue to be attached to the III (Working Plans) circle, with head quarters at Ootacamund until the completion of the Mt. Stuart Working Plan.

Notifications relating to Rangers.

22—12—'30. The following promotions of Rangers are ordered.

I.

With effect from 14th October 1930 vice Ranger L. R. Narayana Ayyar, II grade, retired.

(1) M. R. Ry. A. Krishnamacharya from II grade S. P. T. to II grade permanent.

(2) Mr. C. S. King from III grade permanent to II grade S. P. T.

(3) M. R. Ry. T. Paramasivan Pillai from III grade S. P. T. to III grade permanent.

(4) M. R. Ry. S. Duraiswamy Ayyar from IV grade permanent to III grade S. P. T.

(5) Mr. P. M. Mathew from IV grade S. P. T. to IV grade permanent.

(6) M. R. Ry. A. K. Kunjunni Naiar from V grade to IV grade S. P. T.

(7) Mr. B. Coates from V grade S. P. T. to V grade permanent.

(8) M. R. Ry. P. Ramaswami Ayyar from VI grade permanent to V grade S. P. T.

II.

With effect from 27th November 1930 vice Ranger C. M. Narayanan III grade retired.

(1) Mr. K. C. Joseph from III grade sub-protem to III grade permanent.

(2) Mr. H. Myers, from IV grade permanent to III grade S. P. T.

(3) M. R. Ry. S. Sankaran from IV grade S. P. T. to IV grade permanent.

(4) M. R. Ry. K. Sankaranarayana Rao from V grade permanent to IV grade S. P. T.

(5) M. R. Ry. A. M. Srinivasulu Naidu from V grade S. P. T. to V grade permanent.

(6) M. R. Ry. C. R. Regunathan from VI grade to V grade S. P. T.

12—1—'31. Ranger, P. Ramaswami Ayyar, who was promoted to V grade *sub protem* from 19th September 1930 to 14th November 1930 in this office Ref. No. 5148/30. B. 2, dated 5th November 1930, having since been promoted to V grade *sub protem* in a long-standing vacancy from 14th October 1930 (vide this office Ref. No. 9656/20/52 dated 22nd December 1930), Ranger C. R. Raghunathan will, in his place, be promoted to V grade *sub protem* from 14th October 1930 to 14th November 1930.

First Circle.

18—10—'30. Mr. A. Gulam Dastagiri Saheb, Ranger VI grade, on return from leave (due on 2-11-1930) to Mahendra Range of Parlakimidi Maliahs.

28—10—'30. 1. Mr. D. E. Lewin, Ranger IV grade to the Bhadrachellam Range Upper Godaveri. This cancels his posting to the Lakkavaram Range.

2. M. R. Ry. B. Chenchuram Naidu, Ranger III grade (due from leave on 1-11-1930) to the Palnad Range, Guntur.

3. On relief by No. 2 M. R. Ry. I. Sambasiva Rao Naidu, Ranger V grade, from Palnad Range to Sathenapalli Range, Guntur District. This cancels the posting of Ranger G. Rama Rao to Repalli Range.

4. M. R. Ry. T. Balaramaswami Naidu Ranger VII grade on expiry of leave (30-10-1930) to special duty in Palakonda Range. He should report himself to the Range officer, Palakonda for duty.

1—11—'30. M. R. Ry. G. Rama Rao, Ranger V grade granted a further extension of leave on average pay on medical certificate for 2 months from 15-10-1930 in continuation of the 3 months extension of leave granted to him.

1—11—'30. M. R. Ry. D. Ramakrishnayya, Ranger IV grade, Bhadrachellam Range, Upper Godaveri division is granted leave on average pay on medical certificate for 4 months from 20-9-1930.

1—11—'30. M. R. Ry. C. G. Krishna, Ranger III grade in charge of Bontha Range, Ganjam District granted leave on average pay for 4 months from 3-1-1931 with permission to prefix Christmas and New Year holidays of 1930-31.

14—11—'30. M. R. Ry. B. V. Vaideswara Iyer, Ranger V grade is granted furlough on half average salary for 3 months, in continuation of the leave granted to mim.

11—1—'31. 1. M. R. Ry. D. Ramakrishnayya, Ranger IV grade, on expiry of his leave, posted to charge of Mahendra Range, Parlakimidi Maliahs division.

2. B. Gulam Dastagiri Sahib, Ranger V grade on expiry of his leave, posted to charge of Peddapur Range, Lower Godaveri vice Ranger A. Chengalreddi, transferred.

3. M. R. Ry. A. Chengalreddi, Ranger VI grade in charge of Peddapur Range, Lower Godavari on relief by No. 2, transferred to charge of Marrigudem Range, Upper Godavari Division vice Supernumerary Ranger A. Tirupatirayudu whe has applied for leave.

14—1—'31. M. R. Ry. R. Aligaraswami Naidu, Ranger III grade is granted an extension of leave on half average pay for 4 months in continuation of the leave for the 8 months.

19—1—'31. M. R. Ry. G. Rama Rao, Ranger V grade is granted an extension of leave on average pay on medical certificate for 2 months and leave on half average pay for two months from 15-12-1930 in continuation of the leave already granted.

Second Circle.

14—11—'30. M. R. Ry. A. Seetharamayya Ranger VI grade, on expiry of his leave on 29th November 1930 posted to the charge of Badvel Range of Cuddapah North Division.

2. M. R. Ry. S. Varadarajulu Reddy Forester I grade in charge of Badvel Range will on relief by No. 1 be reverted to his original post in Cuddapah South Division.

25—12—'30. 1. M. R. Ry. K. S. Ramaiah IV grade to take charge of Dhone Range in Kurnool West Division in relief of M. R. Ry. T. M. Krishnamachary.

2. Mr. B. Coates V grade to remain attached to Gundlakamma Range in Kurnool South Division with headquarters at Diguvametta until further orders.

17—1—'31. M. R. Ry. T. M. Krishnamachari Supernumerary Ranger in charge of Dhone Range Kurnool West Division is granted leave on average pay for 2 months from the date of his relief by Ranger K. S. Ramaiah transferred from VI circle.

18—1—'31. M. R. Ry. H. Thammiah, Ranger III grade, in charge of Gundlakamma Range Kurnool South Division is granted leave on average pay for a period of 4 months from 15th February 1931 or the date of relief.

26—1—'31. M. R. Ry. K. R. Viswnatha Ayyar Ranger transferred from V circle to II circle posted to the charge of Gundlakamma Range with head-quarters at Diguvametta (a Railway station via: Guntakal), Kurnool South Division.

2. This cancels the posting of Ranger Coates to Gundlakamma Range.

Third Circle.

1—11—'30. Forester M. Rajaram Pillai, I grade, Working Plans Duty, North Coimbatore District is granted an extension of leave on average pay for three months on medical certificate from 1-9-1930 to 31-12-1930.

22—12—'30. M. R. Ry. K. Raghavan, Ranger VI grade, on relief from the Mangalore Working Plans Division, is posted for duty under the Assistant Working Plans Officer, Palghat, with head-quarters at Palghat.

22—12—'30. Mr. I. Z. Robert Paul, Ranger VI grade, on relief from the Mangalore Working Plans Division, is posted for duty under the Working Plani Officer, North Coimbatore.

1—1—'31. M. R. Ry. N. S. Ayyanna, Supernumerary Ranger under orders of transfer from the Forest Utilization Division to the Working Plans Circle, is posted to work under the

Working Plans Officer, North Coimbatore and Kollegal Divisions to whom he should report himself for duty.

7—1—'31. M. R. Ry. U. Vrtdhachalam Piliai, Ranger V grade Mount Stuart Division is granted leave on average pay for one month from date of the completion of work in the Mount Stuart Working Plans Division.

29—1—'31. Forester C. H. Ramamoorthy IV grade, Working Plan, is granted an extension of leave on average pay for 15 days from 25-1-'31 to 8-2-'31 both days inclusive in continuation of this office S. O. No. 30/30 dated 11-12-'30.

He will get no more extension of leave.

28—1—'31. Forester M. Rajaram Pillai I grade Working Plans North Coimbatore Division, is granted an extension of leave on average pay for 2 months on medical certificate from 1-1-'31 to 28-2-'31 both days inclusive.

Fourth Circle.

14—10—'30. M. R. Ry. A. Siddha Pillai, Ranger III grade, on return from leave transferred from Central Salem and posted to charge of Alangayam Range, Vellore Division.

2. M. B. Kalappa, trained Forester II grade, on relief by No. 1 posted for special duty in Harur range for tracing Chitteri-Tholthukki road, Central Salem Division.

21—10—'30, M. R. Ry. R. Thangavelu Pillai, Ranger VI grade North Salem Division, granted extension of leave on average salary on medical certificate for one month in continuation of the leave already granted to him.

5—11—'30. M. R. Ry. T. M. Varadachari Ranger III grade granted leave on average salary on medical certificate for four months from 23rd October 1930 in continuation of the leave granted.

19—11—'30. M. R. Ry. R. Thangavelu Pillai; Ranger VI grade is on expiry of leave posted to the charge of Harur Range, Central Salem Division.

Fifth Circle,

5—11—'30. 1. M. R. Ry. A. M. Srinivasulu Naidu, Ranger VI grade, from Fifth Circle to III (Working Plans) Circle on relief of Talamalai Range North Coimbatore.

2. M. R. Ry. U. Vriddachalam Pillai, Ranger V grade from III (Working Plans) Circle to V Circle.

Ranger Vriddachalam Pillai is posted to South Coimbatore.

15—11—'30. M. R. Ry. A. N. Ponniah, Ranger VI grade is granted extension of leave on medical certificate as follows from 5-11-1930. L. A. for one mothe from 5-11-1930. L. H. P. for 2 months from 5-12-1930.

17—1—'31. M. R. Ry. C. Thiruvengadam Pillai, Ranger, V grade, Sholavandan Range, is granted leave without pay on medical certificate for three moonths with effect from 3rd January 1931 forenoon.

21—1—'31. M. R. Ry. P. Velayutham Nair, Ranger I grade, Kodaikanal Range, is granted leave from 14-12-1930 to 3-2-1931 as follows;—

Leave on average pay from 14-12-1930 to 22-1-1931.
Leave on half average pay from 23-1-'31 to 3-2-'31.

2. Forester Maragathavelu will be in charge of Kodaikanal Range during the absence of No. 1.

Sixth Circle.

13—10—'30. M. R. Ry. K. Kunhiraman Menon, Ranger VI grade, in charge of Mannarghat Range, granted leave on average pay for four months from date of relief.

2. On the conclusion of the Vernacular Training school in the Palghat Division, M R. Ry. T. G. Sankaran Nair, Ranger III grade, Senior Instructor, is posted to the charge of Mannarghat Range (Vice No. 1).

16—10—,30. On conclusion of the Vernacular Training School in the Palghat Division, M. R. Ry. T. S. Ramalinga Ayyar, Supernumerary Ranger and Junior Instructor, Vernacular Training School, is posted to the Nilambur Division.

17—10—'30. Mr. V. S. Krishnaswami, Assistant Conservator of Forests, is posted to the charge of the Kannoth Range, Wynaad division with effect from date of joining.

2. Mr. B. Coates, Ranger VI grade, on relief by No. 1 is posted for special duty under the District Forest Officer, Wynaad.

28—12—'30. Mr. J. A. Aranha, Ranger I grade, in charge of Mangalore Range, Narth Mangalore division, is granted leave on average pay without medical certificate for four months from 12th January 1931 or date of relief.

2. The Range Officer, Udipi, will hold additional charge of Mangalore Range temporarily in the absence of orders to the contrary from date of relief of No. 1.

23—12—'30. M. R. Ry. P. A. Madhavan, Ranger VII grade and Assistant Range Officer, Ootacamund, is posted to the charge of Beltangady Range, South Mangalore division, *vice* Ranger K. S. Ramiah, transferred to II Circle.

8—1—'31. M. R. Ry. C. Sankunni, Ranger, I grade, in charge of the Chedleth Range is granted leave on average pay for four months from date of relief.

NOTICE.

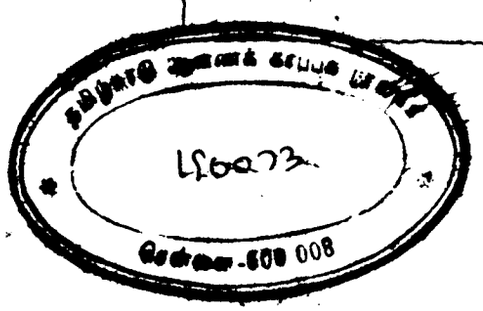
Indian Forester Prize—1931— For Past Students.

A *prize alloted from the "Indian Forester Prize fund" will be awarded to the past student of the Madras Forest College who sends in the best essay on any Forestry subject.

No award will be made unless a satisfactory standard is reached. The essay should be clearly written or typed on one side of the paper only and should not exceed 2000 words. It should reach the Principal not later than the 10th June or earlier than the 25th May 1931. The essay must be the unaided work of the competitor.

* Worth about Rs. 25/-

J. C Wrench,
Principal, Madras Forest College.



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