

Madras Forest College Magazine

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JUNE 1929.

No. 4.

THE MADRAS  
Forest College Magazine.



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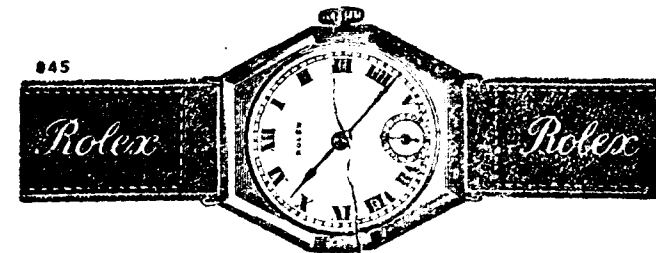
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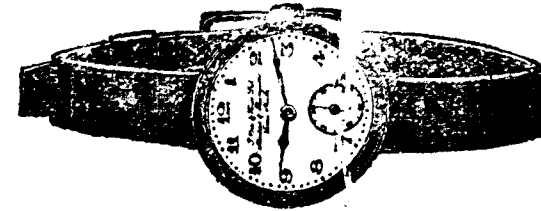
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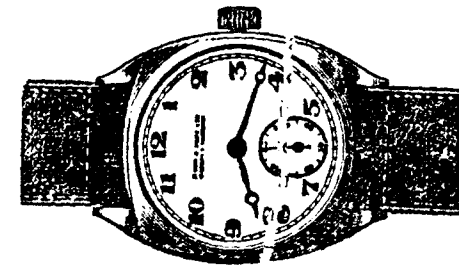
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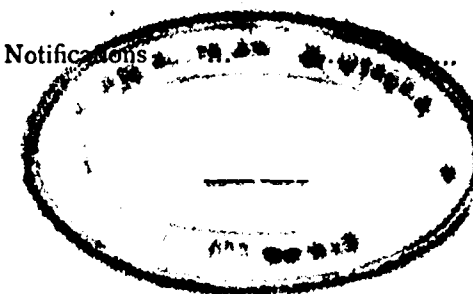
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# The Madras Forest College Magazine

PUBLISHED QUARTERLY.

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The *September* Number being the *first* issue of every volume, or year, of the Magazine, will be sent by V. P. P. for Rs. 2—2—0, the payment covering all four issues of the year and the Registration fee for the V. P. P.

It is not intended that the Magazine should be run at a profit so that as our subscribers increase, the magazine will be issued in a more attractive form.

It is the aim of the Management to run the Magazine for the Ranger-class (including Foresters) and mainly by their contributions. Correspondents are needed to supply suitable matter to maintain the magazine on these lines. We feel confident that this appeal will not go in vain. There must be a number of our readers who have something of interest to write on.

*Subscribers are requested to inform the Editor of all changes of address.*

With effect from 1925—26 (Volume X) an Annual Prize of Rs. 30/— (Thirty) will be offered to the best essay contributed by a Ranger (including Students of the Forest College) during the year.

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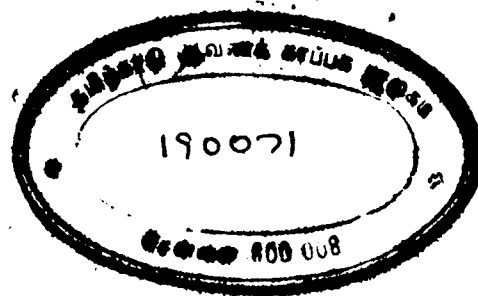
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## THE Madras forest College Magazine.

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JUNE 1929

[ No. 4

**Prize day at the Madras Forest College;  
July 1st 1929.**

On July 1st 1929, which was the concluding day of the 'Forest Week', a large and distinguished gathering of officials and non-official Europeans and Indians assembled in the spacious hall in the Madras Forest College to witness the distribution of prizes, and certificates to the sixteenth batch of trained students. The Honourable Dewan Bahadur M. Krishnan Nair, Member of Council, in charge of the Forest portfolio presided.

Prominent among those present were:—Mr. R. D. Richmond, Chief Conservator of Forests; Mr. and Mrs. Martin; Messrs. T. A. Whitehead, T. Clear, F. R. Madan, K. R. Venkataramana Ayyar, and J. H. Longrigg; Messrs. J. A. Wilson, E. S. Dawson, M. F. Bridge, H. P. Ward, J. M. Sweet, and M. V. Laurie; (examiners); Rao Bahadurs C. S. Ratnasabhapathy Mudaliar, T. A. Ramalingam Chettiar, and B. V. Nath; M. R. Ry. C. V. Venkatramana Ayyangar Avl., B. A. B. L., M. L. C., M. R. Ry. C. Tadulingam Avl., Rao Sahib Y. Ramachandra Rao Garu.

Mr. C. R. F. Williams, **The Principal** opened the proceedings by addressing the gathering as follows:—

“ Before proceeding with the usual brief survey of the past year’s happenings, I should like to extend, on behalf of the College, a very hearty welcome to the Honourable Dewan Bahadur Krishnan Nair who has so kindly consented to take the chair again to-day for the second time. We very much appreciate his presence, and count ourselves fortunate that he has been able to spare the time from his many official duties.

“ We began the year with an almost complete change of staff, when Messrs Stileman, Mitchell and Chandy were replaced by Messrs. Wrench, Walpole and Belliappa. These changes are necessary in view of the fact that the staff of the College are serving Forest officers deputed here for a period of two years. By this means the instruction is above all practical, which is considered to be all important.

“ We lose the services this month of Mr. Raghavan, who has been with us for a period of four years, and I should like to take this opportunity of thanking him for his painstaking work and excellent instruction during this period.

“ Various specialist officers have delivered lectures on their own subjects during the year, and our thanks are due to them, and to the several District Forest Officers who have done much to make our camps a success.

“ Our College course lasts two years, and we have therefore a junior and a senior year.

“ The Senior Division began the year 27 strong, 26 of whom sat for the final examination. One student, R. Ponniah, died in the Government Hospital, Coimbatore, in

March this year as a result of severe dysentery. This was most unfortunate, and our sympathies are with his family in their very great loss. He was doing very well and would easily have secured a Higher Standard Certificate, as he had secured 77% of the total marks then awarded at the end of the 3rd half year. His health had been indifferent for some months and his death was due to extreme weakness.

“ Of the remaining 26, 25 secured Higher Standard certificates, and one student Honours. This latter student, Jai Singh, deputed from the Central Provinces, is to be particularly congratulated as being the first student to obtain Honours since the standard was raised very considerably three years ago. Not only has an Honours student to obtain at least 80% of the total marks awarded, but he has also to satisfy the Board of Visitors that he will make a Range Officer of outstanding ability. An Honour’s Certificate from this College is no mean achievement, and I congratulate student Jai Singh very heartily, and trust that his forest career will be as successful as his College one.

“ The highest student obtained 82.5% and the lowest 61%, while the class average was 69.3%. It is very satisfactory to note that this year the class average is higher in the examinations conducted by outside examiners than that of the term marks, while the examiners on the whole speak favourably of the practical side of their subjects. The standard of education is again a little higher this year; in fact during the last four years there has been a steady increase.

“ This year Madras has come back to its own again, and the seven Madras students are to be found among the first 10 places. It is to be regretted that as far as can be

seen at present, Madras will not be represented here again for some years.

“As usual students find difficulty in expressing themselves really intelligently in English in the technical subjects, and the difficulty of making them apply the principles learnt has still to be overcome. Forestry can never be reduced to an exact science, and it cannot be emphasised too much that the successful Forest Officer is the one who is able to apply basic principles to local conditions.

“The Junior Division is 15 strong and is doing quite well. The class average to date is 70 % while the top student has an average of 79%. This is student S. L. Dube, who was deputed by the Central Provinces Government.

*Athletics* :—“Turning to athletics, which as you probably know, is a compulsory part of our curriculum, and from our point of view a particularly important one.

“The number of students available has been twenty below the average of past years, which means a decrease of nearly 33 %. This has naturally affected us in all branches of sport especially as, apart from hockey, very few students of either year have a natural bent towards outdoor games.

(a) *Cricket* :—“Unless some students have had experience of this game before arrival at the College, it is very difficult to put up a team, as the local tournament takes place in August and September. As neither Senior nor Junior year had any likely recruits it was not possible to enter a team this year. It also seems unlikely that we shall be able to do so next year, as we shall have well under 40 students and we have practically no talent in the present Junior year.

“We had a very pleasant game against our forest visitors yesterday but found them far too good for us.

(b) *Hockey* :—“Our Hockey team, although consisting of good material, was beaten in the first round of the Y. M. C. A. Tournament after a good game against a strong side. The Walayar, Sadivayal, camps rather interfered with combined practice which is so necessary.

(c) *Marathon* :—“A good turn-out on a fine day resulted in a win for the Senior Division with 144 points to 114. The course was approximately 7 miles, and the first student home—Sitaram Singh—completed the round in 45 minutes. The ‘tail’ which always wags to very little purpose was somewhat better than usual this year.

(d) *College Sports* :—“Our College Sports were again held in September, and as the weather was fine, we had a very successful afternoon. The Richmond Cup which is awarded to the student obtaining the greatest number of points in the more important events was won by A. Astewala, a Bombay student, who secured 25 points.

“The various events were on the whole fairly well contested, and there was a definite improvement in the standard for long and high jumps.

(e) *Cowley Brown Cup* :—“The Senior Division won the Cowley Brown Cup by 4 goals to 1 after a very good game.

“The general standard of health and discipline has been satisfactory.

“May I now ask the Honourable Dewan Bahadur Krishnan Nayar to be so kind as to present the Prizes and Certificates.

1. Gold Medal for the best Senior student on marks:  
—Jai Singh.

- 1-a. *Honours* :—Silver Medal for Honours.

2. Campbell-Walker Prize for the best student in Forestry—Jai Singh.
3. Brasier Prize for the best practical all round Ranger—D. V. Nagaratnam.
4. Lodge Prize for Engineering—Jai Singh.
5. Madras Conservators' Prize for Survey and Drawing—Jai Singh.
6. Madras Conservators' Prize for Botany—B. Venkatrao.
7. Madras Conservators' Prize for Range Administration—B. Venkatrao.
8. Chief Conservator's Prize for the best Junior Student—S. L. Dube.
9. Indian Forester Prize for an Essay by present Students—S. L. Dube.
10. Pentland Shield for the best all round athlete—A. Astewala.
11. Fischer cup for Tennis—D. V. Nagaratnam.
12. Moopil Nayar Cup for Marathon Race—Sitaram Singh.
13. Swimming medal—Mukerjee.
14. Cowley Brown Cup for the Inter-Division Hockey—Senior Division.
15. *Hockey Sixes*:—(1) N. Tiga. (2) Kharkar. (3) S. M. Ali. (4) P. Dube. (5) Sitaram Mudaliar. (6) Y. Subramaniam Naidu.
16. Winner of the best Essay in the Madras Forest College Magazine for 1927-28.—Y. Subramaniam Naidu."

### List of Students in the order of merit.

| Rank.                  | Name.                | Whence deputed. | Prizes won.                                                                                                                                                                                                                                                                                                                        |
|------------------------|----------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>M. R. Honours:—</b> |                      |                 |                                                                                                                                                                                                                                                                                                                                    |
| 1                      | Jai Singh            | C. P.           | (a) Gold medal for best senior student on marks<br>(b) Silver medal for honours<br>(c) Campbell Walker Prize for the best student in forestry.<br>(d) Lodge prize for Engineering.<br>(e) Madras Conservators' prize for Survey and drawing.<br>(f) Chief Conservator's prize for best Junior Division student of 1927-'29 course. |
| <b>M. R. H:—</b>       |                      |                 |                                                                                                                                                                                                                                                                                                                                    |
| 2                      | D. V. Nagaratnam     | Madras          | (a) Brazier prize for the best all round Ranger.<br>(b) Fischer cup for tennis.                                                                                                                                                                                                                                                    |
| 3                      | B. Venkata Rao       | Do.             | (a) Madras Conservators' prize for Botany.<br>(b) Madras Conservator's prize for Range Administration.                                                                                                                                                                                                                             |
| 4                      | V. Rangacharlu       | Do.             |                                                                                                                                                                                                                                                                                                                                    |
| 5                      | G. Pathak            | C. P.           |                                                                                                                                                                                                                                                                                                                                    |
| 6                      | S. Rangamannar Das   | Madras          |                                                                                                                                                                                                                                                                                                                                    |
| 7                      | Y. Subramanyam Naidu | Do.             | Prize for the best essay in the Madras Forest College Magazine for the year 1927-'28.                                                                                                                                                                                                                                              |
| 8                      | Gulab Singh          | Do.             |                                                                                                                                                                                                                                                                                                                                    |
| 9                      | G. Kharkar           | C. P.           |                                                                                                                                                                                                                                                                                                                                    |

## List of Students in the order of merit.

| Rank. | Name.            | Whence deputed | Prizes own.                                         |
|-------|------------------|----------------|-----------------------------------------------------|
| 10    | M. Kalappa       | Madras.        |                                                     |
| 11    | H. Mukerjee      | Bihar & Orissa | Swimming medal.                                     |
| 12    | B. Kopikar       | Bombay         |                                                     |
| 13    | N. Tiga          | O. F. S.       |                                                     |
| 14    | Mahammad Ala     | C. P.          |                                                     |
| 15    | P. Dube          | Do.            |                                                     |
| 16    | M. Apte          | Bombay         |                                                     |
| 17    | T. Tiwari        | C. P.          |                                                     |
| 18    | Sitharam Singh   | Do.            | Moopil Nair cup for Marathon race in 1928 and 1929. |
| 19    | B. Trivedi       | Do.            |                                                     |
| 20    | Syed Mumtaz      | Do.            |                                                     |
| 21    | Narain Reddy     | Hyderabad      |                                                     |
| 22    | A. Astewala      | Bombay (a)     | The Richmond cup.<br>(b) Pentland Shield.           |
| 23    | Barkat Ali       | C. P.          |                                                     |
| 24    | Sitaram Mudaliar | Bombay         |                                                     |
| 25    | Kesava Reddy     | Hyderabad      |                                                     |
| 26    | D. Premar        | C. P.          |                                                     |

The President said in the course of his speech:—

“This opportunity that has been afforded to me of coming into contact with the officers employed in the Forest Department, makes me better acquainted with these gentlemen and I think it will considerably facilitate the working of the department. I also feel grateful that I have been allowed to associate though for a day with the students of this institution; if I may refer to myself I may say that I like the society of students.

“With reference to the working of the college itself you have heard the report that was read to us by Mr. Williams. The work that is done in this institution is very creditable both to the members of the staff and to the students. I understood Mr. Williams to say that out of 26 students that were sent up for examination all passed and one of them Mr. Jai Singh has come out with flying colours. He is good apparently not only in his studies but also in the field. I was glad to distribute a number of prizes to him. I am very sorry to note that one of the students died. I also notice from the report that special attention is paid to the physical training of the students. Some of the games like swimming are made a compulsory subject and as one coming from the West Coast, I am very glad to note this. I am also glad to note that the discipline that prevails in this institution is a semimilitary one. All these games and this discipline have the immediate effect of improving the physique and the health of the students. They also prepare the students to fit them for a future hard life.

**A Suggestion:—**“I am very glad to note that specialists who are experts in some branches of Forestry are delivering lectures to the students. I note both from the administration report and from the Principal's report that the students of the Central Provinces take a very prominent part and a very successful part in the life of the institution. One statement I find in the Administration

Report and from the Principal's report and that is that the students find it difficult to express themselves clearly and intelligently in the technicalities of the subject. I believe that is due to the low standard of general knowledge of English. I am making a suggestion and I do not know whether that suggestion will be a useful and a valuable one. It may be useful to insist upon a higher standard of general proficiency in English on those who seek admission to the college. As I stated a few minutes ago I am very glad that I have been afforded this opportunity of coming and presiding on this occasion and distributing the prizes. I congratulate those who have been able to win prizes and I wish better luck next year to those who have not been successful."

After the speech of the Law Member and distribution of prizes, the Chief Conservator, Mr. R. D. Richmond, thanked the Hon. Member for having presided at the meeting. Incidentally he made a reference to the statement of the Hon. Member in regard to the low standard of proficiency in English among some students and observed that the Madras students were probably better educated than the students of other provinces and if the majority of the students were Madrassis then there would be no necessity to raise the standard of general proficiency in English. He exhorted the students not to be content with the learning they had in the college and if the Principal and the staff had been able to put them in the way of learning their lessons intelligently, that itself would have been a considerable achievement. Their difficulties were going to be considerable and they had to explain to the people in a friendly way the object of forestry, pointing out how they were all working for a common cause and were building the future.

After this, the gathering adjourned to the open lawn outside the College buildings and was entertained to a garden party. The function then terminated.

—THE HINDU. 3-7-1929.

### Protection of forests against fire.

*Winning essay for the 'Indian Forester prize' for present students.—By, S. L. Dube, 1928—"30 Division.*

The greatest injury done to a forest is by fire. Unlike agricultural crops which remain only for a portion of a year, forest crops have a much longer life-time (up to a century) and thus fire remains a possibility.

**Necessity:**—Fire destroys fallen seeds, if rises high may reach even fruits on trees. Yearlings are killed outright and a good proportion of the older ones too. In the case of conifers, casualties are greater and destruction is as a rule, permanent, on account of the greater inflammability of their resinous trunk leaves and cones; and they possess no buds to reproduce themselves. If not actually killed, trees become unhealthy, unsound, crooked and stunted. The growth is checked and they fall an easy prey to fungi and insects, and thus give rise to defective varieties. Production of vegetable mould is effectively prevented, rain and wind expose the soil by taking it away and seeds find the bed uncongenial—they are ill fed and open to drought and frost. Disintegration is delayed and soil gets water-proof on hardening, and water rushes off. Erosions and floods result and thus much of the moisture is lost. The effects are far reaching and therefore fire-protection should be attended to before any forestry can be attempted.

**Causes:**—Fire may occur by natural causes, but human agency is at the root of most mischiefs. The inducements to set fire to a forest are wide spread. The grazier does so to get green grass in the heat of hot weather weeks before S. W. monsoon sets in. Due to increased facility of moving about for game and produce, fire is set to isolate game on account of the resulting less covered

areas. Another fruitful danger is from the strolling smokers and pilgrims, "chilams" or from the travellers (cooking). By some burning pieces from torch or railway engine or as is not much uncommon, by deliberate hands, forests may be set on fire, (for mere malice or no apparent good). Detection is not easy and cases are not rare when people have been found guilty of firing them for sheer mischief. Out of hundred cases of forest fires over 90% are due to man. This may be done consciously (as is rare) or unconsciously by mistake.

**Intensity:**—Presence of grass in a forest is the chief source of danger and this danger increases with the thickness, dryness and height of grass. If this is eliminated, the only danger is from leaf-fire which will be light and comparatively easier to extinguish. For steady burning density is more important than height, the higher the grass the less the speed of fire. Leaf-fire results from fallen leaves on the forest floor. The fire may be steady but without much flame and though seedlings may be injured, standing crop suffers little. Leaf-fire depends upon the size and nature of leaves. Fibrous and big leaves like that of teak are more inflammable and send up a high fierce flame. Violence and constancy of prevailing winds add to the intensity of forest fires while sun's heat, absence of dew and upward slope accelerate its progress. Some species catch fire even when green and presence of hollow bamboos is another trouble; when burning, pieces are thrown to a distance of 100—400 yards. The physical properties of soil have some influence on the intensity of forest fire. Fierce fire occurs on loose dry soil. Kargudi forest furnishes a good example of furious fires due to the presence of grass.

#### PREVENTION.

##### (i) Measures for preventing fires from outside:—

Where a forest is surrounded by cultivated fields there is little likelihood of fire from outside. But where surrounding forests exist, some sort of fire-breaks are necessary to prevent fires from entering from outside. A natural stream, swampy ground, a belt of evergreen shrub, prickly pear, cliff or road may act as a barrier. Where these do not exist cleared lines of sufficient width may be made either by cutting the grass and growth to the ground or by allowing it to be browsed down or used as cart track. Generally fire is resorted to, to clear the grass. Sometimes a road with stream or marsh may together affect a fire-break. But the use of such objects is restricted as the boundary may vary from place to place, and even if they are present, to avoid bends and grass which is abundant near stream the traces may be deviated to follow straight easy ground. Thus the forest should be completely isolated from the rest. Such lines are called fire-traces or fire lines (External). The making of such lines, width, and direction will be dealt with later on.

(ii) *Measures for localisation of Internal fires:*—In case fire occurs inside the forest it has to be prevented from spreading to other parts. Hence division of a forest into subdivisions (Blocks) becomes expedient—so that by a net work of cleared boundary lines (internal fire lines) each block may be isolated. Here fire-breaks can be effected with economy and efficiency. There is no compulsion of following the boundary; roads, paths, swamps, stream, and spurs of sufficient width may be made use of. The formation of blocks depends on the crop and so local existing feature may locate them. The width of such traces may be less than the external. The more perpendicular it is to direction of the wind the broader it should be. The grass of the trace should be fired along so that there may be no connecting link and counter-firing will be facilitated.

## FIRE TRACING.

It is cleared by cutting and sweeping inflammable matter and then firing of grass—burning being controlled by protective staff or coolies. Before describing how to fire and when to fire, it will not be out of place to say a few words about the width, direction and preparation of fire lines.

(i) *Direction*:—As already observed this depends upon natural features, roads, or boundary it has to follow. If a choice is possible, wind blowing quarters should be considered. The more the trace deviates, from being perpendicular to the direction of the constant wind, the easier, more economic, useful, and less risky its clearing is. The change of wind should be regarded with care. It is a matter of a thousand pities if in burning a fire line, fire is set to a forest.

(ii) *Width*:—Is a variable figure from forest to forest; the object is that it should be a complete fire-break so that the progress of conflagration may be arrested. The external fire lines require to be much broader. In Kargudi, we found the boundary between the Mysore forest and Government reserve was 600 ft. But the internal fire lines may be as wide or narrower but broad enough to counter-fire and check. If the number of watchers is sufficient, the internal fire lines need not be very wide. The width also depends upon the direction of the wind, inflammable nature of grass and leaves and slope.

The next thing that remains is when to burn and how to burn in order that the fire tracing may be effective.

(iii) *When to burn*:—Just before fire-season, i. e., before the possibility of fire. In the case of different localities, the season may vary. Generally burning should be done when the grass of fire lines is drying and of the forest is yet green and the hot weather has almost begun. A

safe rule is to commence firing as soon as there is enough dry grass—otherwise it may be too late. The burning of boundary trace may take place before internal lines are burnt where we can afford to wait a little more. In the case of incomplete burning subsequent burnings may be done to get good results. This choice of time is very difficult but very essential. All grass does not dry at a time. At different places, the drying differs in degree. If late there is danger of conflagration; if early no result or appreciable good. Another important question is supply of labour at proper time and proper places. It was this difficulty (also expense) that rigid fire protection in Kargudi as advocated by Mr. Cox was not universally adopted, but confined to a few places.

*Time of day*:—Where dews are heavy, burning cannot take place during night. It is recommended to commence burning past noon. Sometimes even in the evening winds are blowing and people cannot face fire against wind while the sun may also be too hot. In such cases, burning may be done at night. Local knowledge is of great use.

(iv) *How to burn*:—On this sometimes depends the success of protection. Sudden gales or burning at an improper place may lead to irreparable loss. Generally burning should proceed against wind as far as possible. In cases of slopes it should proceed from up downwards. Guide lines which are cut before are lined by coolies or subordinates, and fire is set, controlled by broom sticks (green leaves) and advanced by torches. In Kargudi we did with dry bamboo pieces.

*Fire Patrol*:—After burning, fire-watchers should be appointed to patrol the fire lines, clear it of inflammable material, and extinguish small fires. If too big, he should inform the nearest Police or Forest officer. To facilitate his vision high machans on trees or rocks are made.

All that has been said before is preventive, but in spite of all these, fires do occur and then the only way to fight them is either by beating it out or by counterfire.

Beating is possible when the fire is not fierce. The broom or green branches should be beaten obliquely against the progressing flames. If too fierce, and the wind is carrying it fast, counter firing should be resorted to but this requires a good knowledge of the features otherwise it may fire instead of counter-fire. Both of these may be applied. After the fire is put out, burning pieces of wood, or stump should also be put out, and the area patrolled for at least 24 hours.

#### GENERAL.

Isolation may be effected by other measures than rigid fire protection which consists in dividing the area by external and internal lines (trace). Dry patches of grass may be burnt by the side of road or elsewhere, and later on connected. The idea is to separate one part of the forest from the other by a complete burnt belt. This may be done to save money.

Of all the measures stated to prevent fires, the best is to cultivate the good will of the people, without which any attempt will not prevent incendiarism. This can be done by petty concessions and good treatment which cost a forest officer nothing. It should be brought home to their mind that forests are for their benefit and by doing injuries, they may lose all the existing rights and advantages they have. The criminals should be severely punished. Generally to detect the criminals, the best policy is 'divide and conquer'. People being illiterate will give clue under bright hopes of reward.

Lastly fire maps should be maintained in every range on a fairly large scale, showing the areas burnt, the direction of the winds, width of the traces, and watch-stations of

*A Fire watcher.*

## EXTRACTS.

### 1. New rubber plant from Madagascar :

*Euphorbia intisy* grows to a small tree, some of the largest specimens seen by Dr. Swingle being about 12 ft. high and 5 in. in trunk diameter, although trees 20 ft. high with a diameter of 1 ft. are reported. As a rubber plant it is remarkable for the ease with which the rubber can be collected. It separates itself from the latex on exposure to air, no elaborate coagulation or smoking process being necessary. Years ago when the natives of Madagascar were collecting rubber for the French, they would simply cut long gaashes in the bark of the tree, and then go round next morning and peel out strips of rubber. \* \* \*

A problem of practical plant propagation arose through the decision of the U. S. Department of Agriculture to try to introduce this rubber plant (*Euphorbia intisy*) from Madagascar into the United states. \* \* \* The species can be propagated from stem cuttings, but it is of slow growth. \* \* \* Probably its peculiar habit of growth is responsible for the fact that the plant has survived its exploitation in the native haunts in Madagascar. The root system consists of chains of tuberous thickenings strung together after the fashion of sausages. These tubers are storage organs for water, enabling the plant to survive in the desert through a drought as long as six rainless years. With this system of underground life assurance, the remnants of the rubber forest were able to survive the massacre, and to begin life over again after the activities of the rubber hunters had ceased.

—*Nature* 11th May 1929.

### 2 Air operations in Ontario :

The advantage of air craft from the standpoint of observing extensive areas of forest, and for rapid trans.

portation, where nothing but canoe routes prevailed gave it unlimited possibilities. \* \* It is unsurpassed for sighting and locating forest fires. From the height of five or six thousand feet, the smoke of a camp fire can be seen for several miles and located to within an area of a few acres.

In 1921 the first aerial operations were undertaken. These were intended to test out the use of air craft for different kinds of forestry projects, namely, protection, air-sketching and aerial photography.

Aircraft exercises a moral influence on all settlers and users of the forest in districts covered by the patrols. \* \* \*

One of the earliest uses to which it was put in forestry work was that of aerial mapping. Its big advantage over the system of ground parties only, lies in the fact that several thousand acres can be seen and worked over at one time instead of only a few. This means that a large territory can be covered in a few weeks, which ordinarily would require the time of several men for a whole summer.

It is of great value also in this connection for making a rapid reconnaissance survey to determine the extent and condition of reputed forested areas. \* \* \*

Aerial sketching is done by technical foresters specially trained for the work. The forester takes his place in the cockpit of the aeroplane, which is the most forward part of the machine and from which he can see the surrounding country for miles, and is flown to the area to be mapped. \* \* \*

Aerial photography is used in forestry work for mapping and classifying forest types. In this work the object to be obtained is much the same as aerial sketching but the equipment required is more elaborate and expensive. On

the other hand photographs of an area especially where no maps are available are a more accurate and quicker means of mapping.

Two methods of aerial photography are used in this work: oblique and vertical exposures. *Oblique* pictures are similar to the ordinary exposures taken by an amateur from a tower or a hilltop, and show a wide expanse of country in perspective. In forestry work such pictures are not only valuable as permanent records of aerial observations, but are the ones used in 85 per cent of the mapping done in aerial photography. All such pictures to be of use for mapping purposes must show the horizon. This in the photographic print is used for computing the angle at which the camera in the aeroplane was in relation to the country photographed when the exposure was made. This angle is then used for determining a mathematical system of "grids" from which the forest areas are measured.

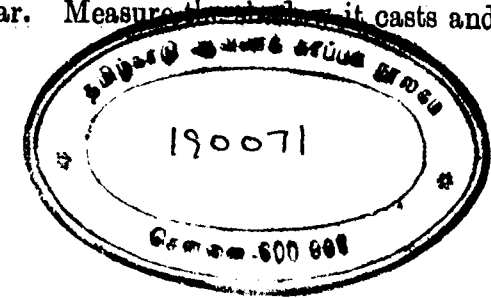
*Vertical* pictures are taken with the camera pointing straight down from the aeroplane and produce a plan-like photo of the area over which the machine is flying. The camera is made to take exposures at such a rate that each succeeding picture will cover a certain proportion of the area covered by the last one. These pictures are then joined together and built into one large composite picture covering certain sections of the area photographed. \* \* \* Being in this form they are of great value for recording small areas where accurate detail is required. \* \* \*

—*Forest and Outdoors, June 1929.*

### 3. A method of measuring the height of trees:

To measure the height of a (straight) tree set a stick straight up in the ground. Use a plumb line to get it absolutely perpendicular. Measure the shadow it casts and

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the shadow cast by the tree. As the shadow of the stick is to the length of the stick so is the shadow of the tree to its height. (This method is of course inapplicable if the shadow of the tree merges with that of others)

—*Forest and Outdoors July 1929.*

#### 4. Compressed air aids shade trees :

Compressed air forced in among the roots of large trees that have been transplanted has been found to be of assistance in causing the tree to recover quickly from the disturbance, as in most planting operations the dirt is thrown back into the soil with so much water that it puddles and prevents the roots from getting necessary air from the soil.

The same compressed air treatment is stimulating to trees in lawns where, apparently, the roots of the densely matted grasses forming the sod sometimes release so much carbon dioxide in respiration that the supply of oxygen in the soil is dangerously reduced. The method can also be applied to street trees which suffer greatly from leaking gas mains and from soil compactness due to paving, or to park trees where the soil is badly trampled by crowds.

The air is supplied by an air pump such as those used to fill air tanks at service stations or for pneumatic drills and hammers, and is forced into the soil by a deep nozzle. Many dying shade and ornamental trees can be encouraged to take a new lease upon life by a treatment of compressed air.

—*Science Service.*

#### 5. Weed Killer developed to utilise surplus chlorine :—

An Australian fertiliser producer, who also makes caustic soda by the electrolytic process has found a use for



the surplus chlorine that is generated in the process of electrolysing the salt solution. It is proposed to manufacture calcium chlorate which has been found to exert a marked destructive effect on weeds. Experiments carried out showed a 100 per cent kill on weed infested areas. In addition to being relatively cheaper than sodium arsenite, this material is non-poisonous, non-corrosive, and non-irritant to the hands of the operators. It is to be marketed under the name of "Weedex."—*Scientific American March 1929.*

#### 6. A wooden overcoat.

Certain German manufactures have perfected paper clothing that can be washed, does not crease, is quickly restored to its proper shape by shaking, is water proof, and considerably lighter than cloth. A winter over coat that would weigh about six pounds if ordinary material were used weighs only about half a pound when made of paper—an especially important consideration when one has to sprint for the morning street-car.

\* \* \*

#### 7. Method of purifying a doubtful water supply :

Apart from boiling, the chlorination method may be used. A stock solution of chlorine water, which will keep for ten days, may be made from three teaspoonfuls of chloride of lime (calcium hypochlorite) in one quart of water. One teaspoonful of this stock solution is added to a two-gallon pail of water. The water is stirred well and allowed to stand for fifteen minutes. It will then be safe for use.

\* \* \*

#### 8. Who invented blotting paper ?

Blotting paper replacing sand as in ink dryer, was accidentally invented by the carelessness of a workman who

forgot to put 'sizing' the material furnishing the surface for paper, in the mix at a paper mill in Berkshire, England. The lot of paper made was ruined, in the opinion of the owners, until one of them tried writing a letter on a piece of it. It soaked up the ink, and the owner soaked up an idea—why not use it for drying ink? Thus of carelessness was born an important aid to humans, but it took the imagination of a thinker to realise the possibilities which arose.

—*Forest and Outdoors* May 1929.

#### 9. Rayon and its uses :

Rayon, the first man-made fibre is made from cellulose from both wood and cotton. A large use for cellulose derivatives is in the manufacture of synthetic textiles such as cellulose nitrate, zinc chloride silk, cuprammonium silk, xanthate or viscose silk and cellulose acetate silk. Rayon has become an important item in the clothing of civilized man, and is widely useful in furnishings in his home. Rayon combined with linen, wool, or cotton, has been tested in the upholstery of New York taxicabs, where for thousands of miles it was exposed to the hardest kind of usage without showing the slightest wear.

—*Forest and outdoors*. April 1929.

#### 10. Are foresters biologists or economists ?

In the training of foresters, much stress has been laid lately on the physical and biological sciences. Some forest schools take pride in the emphasis that is laid in their curricula upon physics, chemistry, zoology, and botany. Any curriculum taken at random shows the preponderance of physical science as the basis of the average forester's training, and the almost entire absence of preparation in economics. The recent development of forest experiment

stations and the demand for men especially trained in the exact sciences has given impetus of this emphasis, says the *Journal of Forestry*.

Yet if one would stop and analyse the activities of the average forester in actual life, the knowledge which comes most into play is in the field of economics. Take the supervisor of a national forest. The problem that confronts him, for example, such expenditure of money as will secure the greatest economic benefits to the community, the economic importance of the timber resources of his forest to the wood-using industries of the region, problems of appraisal, selling and marketing are all of economic nature.

The work of a private forester with a company or in a consulting capacity at the present stage of forestry development is almost exclusively economic in character. Whether it is financial reorganization of the company's investments from a "cut out and get out" policy to a sustained yield basis, whether the application of this or that method of cutting as it relates to present returns or future investments whether it is a problem of forest taxation, advisability of retaining or abandoning cut-over lands—all are problems which call for a high degree of economic training and sound economic judgment.

The state forester, when he plans his fire protection, must think in economic terms, of labour and equipment outlay, material and money damages, and the relation between cost of prevention and suppression and the values involved.

This is not a plea for economic training to the detriment of the exact sciences, but for a balanced training, which would give the student better preparation to face the realities of life.

—*The Timberman*, January, 1929.

## 11. The new museum outlook.

In their historical origin, museums were simply conservatories, in the basic meaning of the word, houses for the storing and safe keeping, of whatever was thought to be worth keeping, and their officers were and are 'keepers'. That is still looked upon as the primary and fundamental purpose of museums, and yet it is only in a few of the largest museums, that the material is of a value so great, or nature so irreplaceable that its conservation is of first and last importance. \* \* \* The attitude, and it was widespread, was that the public might learn if it could, but it was no purpose of the museum to teach. \* \* \*

The new outlook which underlies the recent discussions regarding the museums of Great Britain is that museums must henceforward make it a primary duty to take an active and progressive part in the educational systems of the country. \* \* Says Prof. H. Fairfield Osborn, "the museum is not a conservative but a progressive educational force; it has a teaching quality or value peculiar to itself; it succeeds if it teaches, fails partially if it merely amuses or interests people, and fails entirely if it simply mystifies."

—*Nature*, 29-6-29.

## 12. Useful insects :

Not all insects are destructive enemies of mankind. Many of them are beneficial, and some are absolutely necessary in one way or another. The first kind are exemplified by the silk worms that furnish material for clothing; certain scale insects produce waxy material from which shellac is made, and others furnish cochineal, obtained from their pulverised bodies. The bees not only furnish honey and wax, but also aid in cross-pollination of flowers, particularly many of our crops. \* \* \* To produce the best quality of fruit, the flowers of the culti-

vated fig must be cross-fertilized with pollen from the wild caprifig. The structure of the fig flower and inflorescence is such that this can be done economically only by a tiny insect (*Blastophaga grossorum*, a minute Hymenopterous species). This insect was imported from the fig growing districts of Europe and with its establishment in California a better quality of figs was produced.

Some insects are beneficial because they catch and devour for food other species which are harmful to us. These insects are of great value in aiding the farmers and foresters in fighting their insect foes. \* \* \* The ladybird beetles are among the most important species of predacious insects because they are usually widely distributed and abundant, and both the adults and larvae live upon scale insects, aphids, and on the eggs and larvae of other small noxious insects.

The ground beetles (Carabidae) and a large series of similar forms are very beneficial in destroying insect pests that are found in the ground or on the trunks and branches of trees.

The larvae of certain Syrphidae rival the ladybird beetles in controlling aphid outbreaks. The praying Mantis are well known predaceous forms which capture a great many insects for their food.

The above are but some examples of a considerable series of predaceous insects which render good service by holding insect pests in check.

—*The Makiling Echo* ; July 1929.

### Addition to the Forest Museum.

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### Gazette Notifications.

2—4—'29. Mr. J. W. K. Wernham, D. C. F., on leave, to be D. F. O. Wynaad, in relief of Mr. D. M. Currie granted leave from 1st May 1929.

M. R. Ry. A. V. Sundaram Ayl., E. A. C. of Forests granted leave on average pay for one month with effect from 18th March 1929, or date of relief in Jeypore.

9—4—'29. M. R. Ry. P. Venkatramanan, E. A. C., of Forests granted leave on average pay for two months with effect from 14th March 1929.

Mr. N. Tirumurti, A. C. F., will on relief by Mr. H. A. H. G. Hicks, be attached to the North Coimbatore Division.

16—4—'29. M. R. Ry. A. V. Sundaram Ayl., E. A. C. of Forests, on return from leave posted to the Second Circle.

30—4—'29. Mr. F. R. Madan, Acting Conservator of Forests, Sixth Circle to be in additional charge of the current duties of the Third (Working Plans) Circle, from the date on which Mr. A. A. F. Minchin proceeds on leave, and until further orders.

7—5—'29. M. R. Ry. P. Venkatramanan Ayl., E. A. C. of Forests, on return from leave to be D. F. O., South Salem.

14—5—'29. M. R. Ry. A. R. Narasimha Ayyangar Ayl. E. A. C. of Forests on relief by M. R. Ry. P. Venkataramanan is attached to the Tinnevely Division.

M. R. Ry. E. K. Krishnan Ayl., E. A. C. of Forests on return from leave is attached to the North Salem Division.

28—5—'29. Mr. A. N. Ananthanarayana Sarma, Dy. Conservator of Forests, on return from leave to be attached to the Conservator of Forests, III (Working Plans) Circle until September and thereafter to be Working Plans Officer, Wynaad.

M. R. Ry. A. R. Narasimha Ayyangar Avl., E. A. C. on relief by M. R. Ry. P. Venkataraman is attached to the office of the Conservator of Forests, IV Circle.

M. R. Ry. M. S. Rangasami, E. A. C. of Forests, on return from leave is attached to the Nilambur Division.

4—6—'29. Mr. A. A. F. Minchin, Conservator of Forests, leave on average pay for two months and twelve days, and in continuation thereof leave on half average pay for one year and fourteen days with effect from 2nd June 1929 or date of relief preparatory to his retirement.

11—6—'29. Mr. Abdul Alikhan, A. C. F. in charge of Udumalpet range is attached to the S. Coimbatore Dn., until further orders.

18—6—'29. Muhammad Abdul Karim Sahib Bahadur, E. A. C. of Forests on completion of the special duty in the Chief Conservator's office, will be attached to the office of the Conservator of Forests, Fourth Circle.

2—7—'29. Mr. D. L. Sathe, D. C. F., on return from leave to be D. F. O., Kurnool West Dn.

Mr. S. Ragunatha Rao, D. F. O. Kurnool West, on relief by Mr. D. L. Sathe, to be D. F. O. North Cuddapah.

Mr. N. S. Ghate, A. C. F., VI Circle is attached to the Office of the Conservator of Forests, V circle until further orders.

Mr. R. H. Mitchell, E. A. C., Russelkonda, is posted to be in charge of the Balliguda agency, Ganjam Dn., *vice* Mr. Saiyid-ud-din Ahmed Sahib.

Mr. Saiyid-ud-din Ahmed Sahib, E. A. C., on relief by Mr. R. H. Mitchell, attached to the Upper Godaveri Dn.

Mr. A. L. Griffith, A. C. F. on completion of his training in the VI circle is posted as Assistant to the D. F. O., Ganjam.

Mr. N. Trimurti, A. C. F., N. Coimbatore Dn., will be attached to the Kollegal Dn. with effect from 1st September 1929 or date of joining.

9—7—29. M. R. Ry. E. B. Ramachandra Rao Avl., E. A. C. of Forests in N. Cuddapah, on relief by Mr. S. Ragunatha Rao, to act as D. F. O., Palghat.

Mr. Abdul Ali Khan A. C. F. of Forests, S. Coimbatore Dn. is attached to the Sixth Circle.

16—7—'29. M. R. Ry. E. V. Padmanabha Pillai Avl., D. F. O., Palghat, leave on average pay for four months, and in continuation thereof leave on half average pay for two months will effect from date of relief.

Mr. N. S. Ghate, A. C. F., attached to the office of the Conservator of Forests, V circle, is posted as assistant to the D. F. O., Kollegal.

Mr. A. L. Griffith, A. C. F. will be attached to the V circle with effect from 22-7-'29 and until further orders.

28—7—'29. Mr. R. S. Browne, Dy. Conservator of Forests will be considered to have been on leave on average pay from 1-10-28 to 10-12-28.

Mr. W. F. Chipp, Forest Engineer in charge of Saw mills and Extraction Dn. Olavakkot, leave on average pay in India for one month and 9 days from 22-8-29 to 30-9-29 both days inclusive.

Mr. Abdul Ali Khan A. C. F., is attached for a month to the Working Plans Officer, Mount Staurt. He will thereafter be attached to Madura Dn.

33—7—'99. Mr. W. H. Woodhouse Adolphus, E. A. C. granted leave on average pay for four months with effect from the afternoon of 16th July 1929.

6—8—'29. Mr. C. C. Wilson, I. F. S. granted an extension of leave for three months on half average pay on medical certificate with effect from 1st September 1929.

Mr. J. A. Wilson, D. F. O., N. Coimbatore, to act as Forest Engineer in charge of Saw Mills and Extraction Division, Olavakkot, during the absence of Mr. W. F. Chipp on leave.

Mr. A. L. Griffith, A. C. F., V circle, is posted to act at D. F. O., N. Coimbatore, during the absence of Mr. J. A. Wilson on other duty.

The posting of Mr. A. L. Griffith as assistant to the D. F. O., Ganjam is cancelled.

### Notifications relating to Rangers.

10—5—'29. The rangers in the Second Grade below N Sundaresa Ayyar in Rangers' list will be re-arranged in the following order:—

A. K. Kandan  
K. Kunhirayan  
N. C. Mahadevan Pillai  
K. R. Krishnan Nayar

*Sub protém.*

N. L. Sarma  
A. Krishnamacharya  
C. S. King.

2. If and when Ranger Sarma is confirmed his name will be placed above that of Ranger Krishnan Nayar.

3. The promotion of Ranger Krishnan Nayar in advance of Rangers Kandan, Kunhirayan and Mahadevan Pillai, and Sarma was due to an error which it is necessary to correct.

The following promotions of rangers are ordered:—

20—5—'29. With effect from 1—4—1929 in the vacancy due to the reduction of M. R. Ry., B. S. Ramasami Ayyar from the Fourth Grade to the bottom of the Fifth Grade:—

(1) M. R. Ry., C. Karunakara Menon from Fourth Grade sub protém to Fourth Grade permanent.

(2) M. R. Ry., V. Narayanaswami Ayyar from Fifth Grade permanent to Fourth Grade sub protém.

The following promotions of Rangers are ordered:—

2—8—'29. With effect from 1st June 1929 *vice* S. Venkata. swamy Naidu, Ranger Fifth Grade, retired:

(1) M. R. Ry., M. P. Subbayya from Fifth Grade S. P. T. to Fifth Grade permanent.

(2) M. R. Ry., T. Kondathu Kavundan, Ranger Sixth Grade to Fifth Grade S. P. T.

With effect from 1st June 1929 *vice* M. R. Ry., A Subramania Ayyar Ranger Fifth Grade deceased:

(1) M. R. Ry., C. Vasu from Fifth Grade S. P. T. to Fifth Grade permanent.

(2) M. R. Ry., I. Sambasiva Rao Nayadu from Sixth Grade to Fifth Grade S. P. T.

31—5—'29. Ranger Mr. C. S. Ramanathan will, on the expiry of leave granted to him report for duty to the Forest Utilization Officer, Madras, for orders.

1—8—'29. Mr. K. C. Joseph, Ranger Fourth Grade Chedleth Saw Mill is granted leave on average pay from 5—7—'29 both days inclusive.

5—8—'29. Ranger H. Myers is granted an extension of leave on average pay for one month in continuation of the leave on average pay for 3 months granted. He will on expiry of this leave report to Mr. N. S. Ghate, Assistant Conservator of Forests on special duty in the Kollegal Division.

#### First Circle.

27—5—'29. On expiry of the leave granted to him, M. A. H. Kirimani Sahab Ranger Fourth Grade is posted to the Cherla Range, Upper Godavari.

1—6—'29. M. R. Ry., P. S. Varadkrishnamachari, Ranger Fourth Grade, is granted leave on average pay for four months from date of relief.

2. On expiry of the leave granted to him (6-6-1929) Mr. I. John. Ranger Seventh Grade is transferred from Upper Godavari to Nellore for the charge of the Rapur Range.

6—6—'29. On expiry of the leave granted to him (18-7-1929) M. R. Ry., D. Krishnaswamiah, Ranger Sixth Grade, is posted to Nellore District for the charge of the Udayagiri Range.

2. On relief by No. 1 M. R. Ry., D. Ramakrishnayya, Ranger Fourth Grade is transferred to Upper Godavari for the charge of the Bhadrachellam Range.

7—6—'29. M. R. Ry., M. Umápathi Mudaliar, Ranger Sixth Grade, is granted leave on average pay for 2 months from date of relief.

11—6—'29. On expiry of one month's leave granted to him (22-6-1929) M. R. Ry., B. Chenchuram Naidu, Ranger Third Grade is transferred from Ganjam to Guntur District and posted to Repalli Range to relieve Ranger S. Chidambara Iyer granted leave.

11—6—'29. M. R. Ry., S. Chidambara Iyer, Ranger Fifth Grade, Repalli Range, is granted leave on average pay on medical certificate for 4 months from date of relief by Ranger B. Chenchuram Naidu.

I—8—'29. M. R. Ry., B. S. Sankaran, Ranger Sixth Grade, is granted extraordinary leave without allowances from 12-3-1929 to the date on which the Ranger joins duty at Satayamangalam Sandalwood depot.

#### Second Circle.

3—5—'29. M. R. Ry., A. Muthukrishna Mudaliar Ranger Sixth Grade Kurnool West Division is granted an extension of leave on average pay on medical certificate for a period of three months from 15-3-'29.

On expiry of the leave he should remain attached to Gundlabrahmeswaram Range as already ordered.

4—5—'29. M. R. Ry., B. T. Seetharama Ayyar Ranger Fifth Grade on expiry of his leave is posted back to Dornal Range Kurnool East Division.

2. Mahomed Abdul Rahiman Khan Sahib in charge of Dornal Range, Kurnool East Division on relief by No. 1 is transferred to Cuddapah Range, Cuddapah South Division.

28—5—'29. M. R. Ry., N. C. Mahadevan Pillai Ranger II grade on expiry of his leave on 2nd June 1929 is posted to the charge of Turimella Range, Kurnool East Division vice M. R. Ry., A. Ranganayakulu Nayudu who has applied for leave.

7—6—'29. S. Varadarajulu Reddi Forester I grade in the Cuddapah South Division is transferred to Kurnool West for charge of the Dhone Range vice M. R. Ry., C. Ramaswami Nayadu Ranger I grade granted leave.

To join expeditiously without availing himself of the full joining time.

12—6—'29. M. R. Ry., A. Ranganayakulu Nayadu Ranger II grade, Turimella Range, Kurnool East Division is granted leave on average pay for 2 months from 5th June 1929.

21—6—'29. M. R. Ry., C. Ramaswami Nayadu Ranger I grade, in charge of Dhone Range, Kurnool West Division is granted leave on average pay on medical certificate for a period of 4 months from the afternoon of 13th June 1929.

23—6—'29. M. R. Ry., M. Krishna Rao, Ranger III grade in charge of Sanipaya Range, Cuddapah South Division is granted leave on average pay for 4 months from date of relief by No. 2.

2. M. R. Ry., S. Ramachandra Ayyar Ranger III grade and Senior Instructor Vernacular Training School is posted to the charge of Sanipaya Range, Cuddapah South Division on the close of the current session of the Vernacular Training School, to relieve No. 1.

23—6—'29. M. R. Ry., A. Muthukrishna Mudaliar, Ranger, IV grade on special duty under the Assistant Working Plans

Officer in Kurnool West Division is posted to the charge of Sivapuram Range in the same division to relieve No. 2.

2. M. R. Ry., P. V. Krishna Rao Nayadu Ranger VI grade in charge of Sivapuram Range, Kurnool West Division on relief by No. 1 is posted to the charge of Bukkapattanam Range, Ananthapur Division to relieve No. 3.

3. M. R. Ry., N. Rajagopala Chetty Supernumerary Ranger in charge of Bukkapattanam Range, Anantapur Division on relief by No. 2 is posted to the charge of Dhone Range, Kurnool West Division to relieve No. 4.

4. M. R. Ry., S. Varadarajulu Reddi Forester I grade in charge of Dhone Range, on relief by No. 3 will revert to Cuddapah South Division.

16—7—'29. M. R. Ry., A. Ranganayakulu Nayadu Ranger II grade on expiry of his leave on 5th August 1929 posted to the charge of Cuddapah Range, Cuddapah South Division.

2. Mahomed Abdul Rahiman Khan, Ranger VI grade in charge of the Cuddapah Range on Relief by No. 1 is posted to the charge of Vempalle Range, Anantapur Division.

1. M. R. Ry., T. Sreeramulu Nayadu Ranger VII grade in charge of Vempalle Range is on relief by No. 2, posted to work under Mr. V. Sundaram Extra Assistant Conservator on special duty with head-quarters at Dornal.

16—7—'29. M. R. Ry., T. M. Krishnamachari Supernumerary Ranger, on expiry of his leave on 1st August 1929 is posted on special duty in the Balapalle Range with head-quarters at Koduru, until further orders.

27—7—'29. M. R. Ry., D. N. Subrahmanya Ayyar Ranger VI grade in charge of Ganganapalle Range is posted to be in additional charge of the Vempalle Range vice T. Sreeramulu Nayadu under suspension.

To take charge forthwith and look after the current duties in the Range until relieved by Ranger Abdul Rahiman Khan Sahib.

27—7—'29. M. R. Ry., T. Sreeramulu Nayadu Ranger VII grade in charge of Vempalle Range Ananthapur Division is granted leave from 25-3-1929 to 2-5-1929 as follows:—

25-3-'29 to 27-3-'29 3 days leave on average pay without medical certificate.

28-3-'29 to 2-5-'29 1 month 5 days leave on average pay on medical certificate.

27—7—'29. M. R. Ry., T. M. Krishnamachari Supernumerary Ranger, Cuddapah South Division is granted an extension of leave on average pay for a period of 10 days from 1st August 1929 in continuation of the leave already granted.

2. On expiry of the leave he will remain attached to Balapalle Range as already ordered.

### Third Circle.

22—7—'29. The leave on average pay for 3 months with effect from 4th April 1929, granted to M. R. Ry. C. R. Ragunathan, Forest Research Ranger, Palghat is extended by 3 weeks.

13—8—'29. Mr. J. D. Theodore, Ranger, VI Grade, on working Plans duty under the Working Plans Officer, South Mangalore is granted leave on average pay for 4 months from 1st August 1929.

### Fourth Circle.

7—5—'29. M. R. Ry. S. Ramanujam Sesha, Ranger VI grade, is granted leave on average pay without medical certificate for 2 months from date of relief.

2. M. R. Ry. P. K. Subbanarayana Ayyar, Supernumerary Ranger, Central Salem division, is posted to the charge of Rasipur Range Vice No. 1, to join at once.

23—5—'29. M. R. Ry. L. R. Narayana Ayyar, Ranger III grade, in charge of Tiruvannamalai Range is granted leave on average pay without medical certificate for 4 months from date of relief.

2. Mr. E. W. Fernandez, Ranger V grade on special duty is posted to the charge of Tiruvannamalai Range, he will relieve No. 1 on completion of his special duty.

14—6—'29. M. R. Ry. M. N. Raman Pillai, Ranger, III grade, transferred from the III (Working plans) Circle, is posted to the charge of Harur range Central Salem division.

21—6—'29. M. R. Ry. S. Ramalinga Ayyar, Supernumerary Ranger, now on special duty in Chengam Range on completion of verification of patta sandal trees on the Tenmalais, is posted to special duty on Kuttathur-Lushington Road works with head quarters at Chengam. He will survey the trace and submit necessary estimates etc., as may be instructed by the Extra Assistant Conservator, Tiruppattur.

25—6—'29. M. R. Ry. T. D. Rajabadar Mudaliar, Ranger VI grade in charge of Shevaroy's North Range is posted to be in additional charge of Harur Range, Central Salem division, until Ranger M. N. Raman Pillai joins the Range. He is to relieve Ranger S. G. Venkataraman at once.

29—6—'29. M. R. Ry., Karunakaran Nambiyar, Ranger III grade, transferred from the Fifth Circle, is posted to Palmaner Range, Chittoor Division, Vice M. R. Ry. M. R. Duraiswami Ayyar, Ranger V grade, Palmaner Range, transferred to Fifth Circle.

7—6—'29. M. R. Ry. M. Pakiyathan, Ranger II grade, is granted leave on average pay on medical certificate for 3 months from date of relief.

2. Mr. Saiyid Yahia, Ranger V grade, is posted to charge of Turaiyur Range, South Salem division, to join expeditiously and relieve No. 1.

- 5—7—29. M. R. Ry. A. Siddha Pillai, Ranger III grade on leave, South Salem division, is posted to the charge of Harur Range, Central Salem division. He is to join duty on 20-7-1929.

The posting M. R. Ry., M. N. Raman Pillai, Ranger III grade to the charge of Harur range is cancelled.

He is posted to the charge of Rasipur range, South Salem division.

- 8—7—'29. M. R. Ry. P. K. Subbanarayana Ayyar, Supernumerary Ranger in charge of Rasipur range, is on relief by M. R. Ry. M. N. Raman Pillai Ranger III grade, posted for special duty, Central Salem division for enumeration of patta sandal trees.

- 13—7—'29. Mr. E. W. Fernandez Ranger V grade Vellore division is granted leave on average pay for one month from 4-7-29.

- 23—7—'29. The two months' leave on average pay without medical certificate granted to M. R. Ry., S. Ramanujam Sesha, Ranger VI grade in this office Service Order No. 19 of 1929, dated 7-5-1929, is extended by two weeks.

2. M. R. Ry. P. K. Subbanarayana Ayyar, Supernumerary Ranger will continue to be in charge of Rasipur range until relieved by Mr. M. N. Rama Pillai.

- 6—8—'29. P. K. Subbanarayana Ayyar, Supernumerary ranger, is transferred to North Salem for duty under the Spike duty Ranger.

- 12—8—'29. Mr. E. W. Fernandez, Ranger V grade on special duty in Vellore division is posted to the charge of Palmaner range, Chittoor division. To be relieved at once.

### Fifth Circle.

- 9—5—'29. Ranger A. Culas is posted to Metur on special duty under the orders of the Engineer-in-Chief Cauvery Metur Project in relief of Ranger A.B. Fenn in temporary additional charge. To join immediately.

2. Supernumerary Ranger T. S. Sankaranarayana Aiyar is granted 2 months leave on medical certificate in continuation of the leave already granted to him.

- 14—5—'29. M. R. Ry. C. R. Raghunathan, Ranger VI Grade, transferred to this Circle, after return from his leave is posted to Tunacadavu Range, South Coimbatore District.

- 23—5—'29. Ranger C. Thiruvengadam Pillai should proceed to Topslip in South Coimbatore District to assist with Regeneration for a month before he goes to Kollegal for special duty. To join expeditiously.

- 6—6—'29. M. R. Ry. C. Thiruvengadam Pillai Ranger, Tinnevely, is granted leave not due on half average pay for four months from date of relief.

- 9—6—'29. On expiry of his leave, Supernumerary Ranger T. S. Sankaranarayana Ayyar is posted to the South Coimbatore Division; He should report himself for duty before the District Forest Officer South Coimbatore, for orders.

- 12—6—'29. This office Service Order No. 39 of 1929 dated 23rd May 1929 posting Ranger C. Tiruvengadam Pillai to Topslip in South Coimbatore for a month is cancelled. His transfer to Kollegal Division will stand.

- 14—6—'29. On return from leave M. R. Ry. A. N. Ponniah, is posted to South Coimbatore to work under the orders of the District Forest Officer, South Coimbatore.

- 14—6—'29. On return from leave, M. R. Ry. K. Karunakara Nambiyar, ranger III grade is posted to Kollegal Division, to work under the orders of the District Forest Officer Kollegal.

19—6—'29. In continuation of this office S. O. Nos. 8 of 1929 dated 24-1-29 and 14 dated 20-2-29 M. R. Ry. P. Sithapathy Ayyar Ranger, V. Grade is granted extension of leave on average pay on Medical certificate for one month from 14-4-29.

30—6—'29. M. R. Ry. M. R. Doraiswamy Ayyar, Ranger V grade, posted to the Fifth Circle is appointed Senior Instructor of the Vernacular Training School and is directed to report himself for duty to the District Forest Officer Kollegal to take charge of the Vernacular Training School which will be opened at Kollegal on 1st August 1929. He should join with as little delay as possible to make the necessary arrangements.

2. Forester S. R. Das, M. F. C. on relief from the Madras Forest College is posted to the charge of the Cum-bum Range, Madura District. To join urgently.

3. Supernumerary Ranger, S. Narayanaswamy Iyer is appointed Junior Instructor of the Vernacular Training School and should report himself to the District Forest officer Kollegal by 15th July 1929.

4. M. R. Ry. Karunakaran Nambiar, III Grade, on return from leave is transferred to the IV Circle to the charge of the Palmaner Range, Chittoor district, to join expeditiously. This cancels the order posting him to Kollegal Division.

6—7—'29. Ranger, H. Myers is posted to the Kollegal division. To report to District Forest Officer, Kollegal at Kollegal.

6—7—'29. Ranger, K. G. Monnappa is posted to the charge of the Kodamady Range, Tinnevely District.

15—7—'29. M. R. Ry. C. Karunakara Menon, Ranger V Grade, Kodamadi Range, Tinnevely District is granted leave on average pay for 2 months on Medical certificate from date of relief.

29—7—'29. M. R. Ry. B. S. Sankara Iyer, Ranger transferred to this Circle is posted to the Satyamangalam Sandalwood depot.

2. M. R. Ry., K. O. Anandan Supernumerary Ranger is posted for duty in the North Coimbatore District.

8—8—'29. Ranger, A. Culas on relief at Metur is posted to the Bhavanai Range North Coimbatore Division.

8—8—'29. Ranger, C. Thiruvengadam Pillai V Grade, on return from leave is posted to special duty in the Tunacadavu Range in relief of Supernumerary Ranger, T. S. Sankaranarayana Iyer. This cancels his posting to the Kollegal division.

2. Supernumerary Ranger, T. S. Sankaranarayana Iyer on relief by No. 1 is posted to special duty in the Kollegal division.

#### Sixth Circle.

11—4—'29. M. R. Ry. B. S. Ramaswamy Ayyar, Ranger V grade, is granted leave on average pay on medical certificate for 2 months from 1st May 1929, subject to report of eligibility from the District Forest Officer, South Mangalore.

29—5—'29. Mr. K. Dooma Shetty, Special Duty Ranger, Chedleth Range is granted leave on average pay without medical certificate for one month from 28—5—1929.

16—6—'29. M. R. Ry. M. V. Ganesan, Supernumerary Ranger, attached to the Amarampalam Range, is granted leave on average pay for one month and 15 days from 5th May 1929.

20—6—'29. M. R. Ry. B. S. Ramaswamy Ayyar, V grade, on return from leave on 1st July 1929, is posted to the Wynaad division for special duty.

2. His posting to the South Mangalore Division is cancelled.

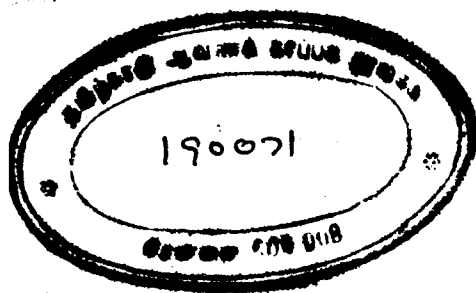
22-6-'29. N. Gopalan Nair, Special duty Ranger, Manantoddy, is transferred to take charge of Sultan's Battery Range and to proceed forthwith.

10-7-'29. M. R. Ry. B. S. Ramaswamy Ayyar, Ranger V grade is granted leave as follows:—1. Leave on average pay without medical certificate for 3 months and 10 days from 7-8-1928 to 26-11-1928 both days inclusive. 2. Leave on half average pay for 5 months and 4 days from 27-11-28 to 30-4-1929 both days inclusive. 3. Leave on average pay on medical certificate for 4 months from 1-5-1929 to 31-8-1929.

4-3-'29. K. Dooma Shetty, Ranger V Grade on Special Duty Chedleth Range is granted following leave for 3 months from 28-5-1929. Leave on average pay for one month from 28-5-29 without medical certificate. Leave on average pay with medical certificate for 2 months in continuation thereof.

2. Wynaad District Forest officer's S. O. No. 154'29 granting the Ranger leave on average pay for 1 month from 28-5-29 is cancelled.

5-8-'29. Ranger J. D. Theodore is granted leave on average pay for one month from the forenoon of 1st August 1929, on urgent private affairs.



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