The Forest Research Institute, Dehra Dun.

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THE history of Forest Research and education in forestry in India has been intimately connected with Dehra Dun for the last fifty years, as the first college for training Indians in forestry was started there in the year 1878. Dehra Dun was chosen because of its favourable position for the study of two important types of Indian forests, those where sal (*Shorea robusta*) predominates, and the coniferous forests of the Himalayas, which are all well represented close to Dehra Dun, and also because of its delightful situation and (during most of the year) its favourable climate.

For the first fifty years of the existence of the Forest Department in India, no attempt was made to organize the conduct of forest research, and thus to coordinate and elaborate the scientific knowledge so necessary to successful economic working. Valuable scientific work has, it is true, been carried out from time to time, as the result of individual efforts on the part of enthusiasts in special branches, but, while the results of these efforts have in many cases been published, much useful work has been lost for want of systematized methods.

A new phase in the history of the department was opened when Sir Sainthill Eardley Wilmot was appointed Inspector-General of Forests. He had for some time been convinced that the inauguration of research work in connection with the forests of India was an urgent necessity. The proposals for the formation of a Forest Research Institute were considered and formulated between 1903–05 and in 1906 the Imperial Forest Research Institute was established. When it is considered that the area of forest under the control of the Forest Department is about 261,000 square miles (nearly 24% of British India) and yields an annual revenue of about Rs. 395 lakhs a year which rose to Rs. 595 lakhs during the post-War period, it will be recognized that considerable expenditure on research in forestry, calculated to improve the methods of growing, developing and exploiting the forests is amply justified.

Sir Sainthill Eardley Wilmot,
Inspector-General of Forests, 1903-1908.

The Inspector-General of Forests was the first President of the Institute. There were six Research posts:

1. Imperial Silviculturist.
2. Imperial Superintendent of Forest Working Plans.
3. Imperial Forest Zoologist.
4. Imperial Forest Botanist.
5. Imperial Forest Economist.
6. Imperial Forest Chemist.

At the time of the creation of the Institute the offices of Nos. 1, 5 and 6 were located in the College building. As the accommodation in the College building was not sufficient, the question of providing suitable buildings for the new Institute was taken up and the Chandbagh area of 47 acres was acquired at a cost of Rs. 1,68,000. The main building with other laboratories and workshops fully equipped for the conduct of research work at a cost of Rs. 5,08,000, was opened in 1914.

It was expected that the Chandbagh buildings would prove sufficient for many years to come, but the development of the forest resources of India, made great strides during the Great War and every

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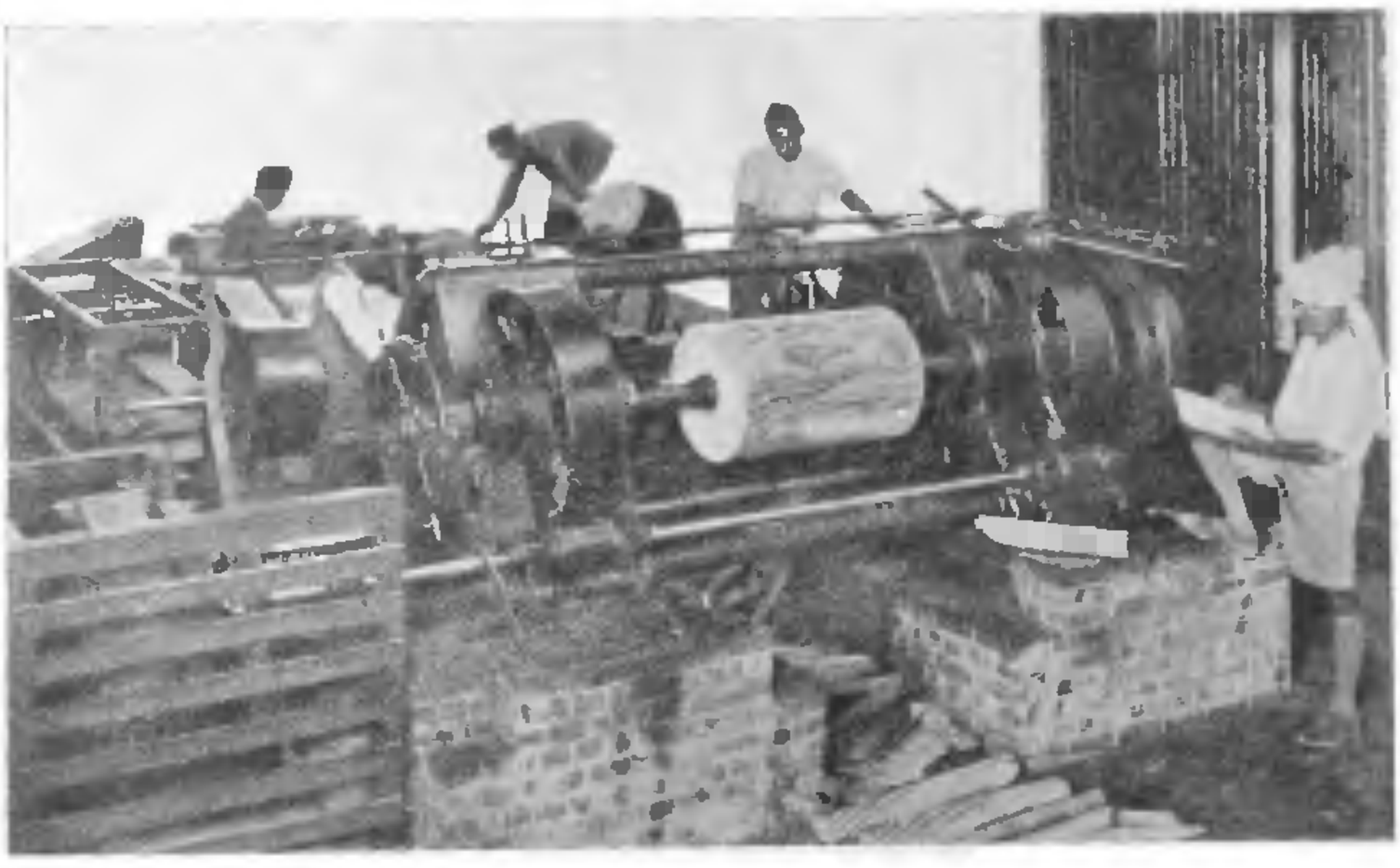
effort was made to render the country less dependent on foreign supplies.

The Industrial Commission pointed out in 1918, the necessity for expanding the Institute and emphasised the necessity for increasing the number of Research Officers.

The Board of Forestry in 1919, supported the proposals of expansion and the present site, which is about 4 miles away from Dehra Dun, was purchased.

In this estate of 1,400 acres, are situated the main building for the Offices of the President, Silviculturist, Botanist, Economist and Entomologist, the small building for the Chemical Branch, the Insectary, the Saw-mill, the Pulp and Paper Plant, Wood workshops, Timber Testing, Timber Seasoning and Timber Preservation Laboratories, Botanical Garden, Arboretum, Experimental Gardens and residential quarters for the staff. The main building was opened by His Excellency the Viceroy, Lord Irwin, in 1929. The Institute is fully equipped with laboratories, museums and libraries for research work and it has cost Rs. 1,07,21,412 up to the end of 31st March 1932.



A Veneer in the Wood Workshop.

Activities —The original main divisions of the Research Institute, excluding Working Plans, have been maintained , but these have been subdivided into sections manned by experts under the general control of the head of each branch

The work is now divided as follows —

Direction —The President and Inspector General of Forests to the Government of India, is in charge of the Institute

Silvicultural Branch —This, though not the largest, is the senior branch It aims not only at speeding up, improving and cheapening production, but in the first instance, at maintaining a supply of valuable timber from certain areas It is not generally known that reproduction of some of the more important Indian trees, is obtained with the greatest difficulty, and yet future supplies and revenue depend primarily on success in overcoming this difficulty

The scope in this branch is so large and the conditions of forests in the country are so varied that the Silviculturist has now to confine himself to the standardisation of methods of research, to the organisation of investigations, to the computation and recording of data collected by local forest officers, and to offering assistance in applying information available in India or elsewhere in the world

In order to gain first-hand knowledge from the local forest officers and to discuss and remove their difficulties Silvicultural conferences are being held regularly, every four or five years

Botanical Branch —Botanical research was one of the earliest activities of forest officers in India , in the course of exploring the forests, trees and other vegetation were identified, but the needs of to day far exceed the earliest requirements Systematic botany no longer merely serves the purpose of an introduction to the flora of an area , authentic identification is as essential to the development of silviculture as to the more extensive use of forest produce The distribution of types of vegetation (ecology) has been recognised to have considerable importance, and a beginning has been made in the study of damage by fungi (mycology) to living trees and to felled timber

The Herbarium of this Branch which contains considerably over 200,000 sheets has been used as the principal source of material for the identification of several forest floras

Entomological Branch —This Branch is concerned with the investigation of damage by insects both in the forest and forest produce

The work in systematic entomology is also done in this Branch The scope is so large that it is only by the international co operation of specialists that progress is maintained The known insect fauna of India is said to constitute 45,000 species Control measures are sought which are both practicable in application and reasonable in cost Means of preventing or restricting the damage by a number of borers of Indian trees and timbers have been devised and losses amounting to lakhs of rupees annually are avoided

The most recent activity of this Branch, the first of its kind in India, is the introduction of the biological control of defoliators of teak in South India by importing parasites of caterpillars that defoliate teak in Burma These parasites, it is expected, will assist materially in checking the ravages of the pests and reduce the losses, which in bad years, have been estimated to exceed Rs 100 per acre of teak plantation

The Utilisation Branch —This Branch comprises separate sections dealing with wood technology, timber seasoning, timber testing, timber preservation, pulp and paper making, wood workshop including veneer subsections and minor forest products All these sections except the last one are under separate Sectional Officers who have received special training for their work

Wood Technology Section —The main function of this Section is the proper identification of all timbers that are put on the markets Cheap timbers of poor quality are often put on the market under the names of better class timbers of proved reputation The superficial appearance of a timber, its colour, grain and other external characteristics, are often deceptive Valuable help has been given to Government Departments such as Railways, Army, Air Force, Irrigation, Industries, Commercial Intelligence, Corporations and many

business concerns, and this help has prevented costly mistakes arising from wrong identifications

Timber Seasoning Section —In this Section the proper methods of seasoning are investigated as seasoning is an essential preliminary to efficient utilisation of timber

Investigations in different methods of seasoning of timber, have been carried out in this Section It has been proved that for large-scale production the kiln drying of timber is more economical than air seasoning as the process is independent of weather conditions, and the period is reduced considerably This Section is responsible for the design, specifications, testing, etc, of all the kiln installations that have so far been established in this country

Timber Testing Section —This Section has done a lot of work in connection with the strength tests of Indian timbers

The chief aims of the Section are (1) to determine the mechanical and physical properties of Indian woods and thereby to find suitable outlets for those of which the supply is in excess of the demand, (2) to find Indian substitutes for important timbers used for a variety of special articles, and (3) to advise enquirers as to the suitability of timbers for all purposes where strength is an important factor

Paper pulp Section —The successful experiments carried out in this Section in connection with the preparation of pulp and paper from bamboos and other raw materials, have helped the Indian paper industry with the aid of protection, to capture gradually almost the entire market of imported writing and printing papers In 1924–25 the consumption of bamboos in Indian paper mills was about 4,600 tons In 1935 it was over 30,000 tons

This Section is in charge of all problems connected with pulps and it is in a position to give valuable help and advice on all subjects connected with wood, grass and bamboo pulps in India

Preservative Treatment —Weight for weight timber is, in almost all cases, as strong as steel, and considerably stronger than concrete Volume for volume concrete weighs 2½ to 4 times as much as wood, and as wood is easy to repair or replace, it is, for many types of structure, a good proposition from the engineering point of view, provided it can be made durable The Forest Research Institute has for many years been investigating the subject, and is in a position to offer considerable help and advice on all matters connected with the treatment of Indian woods and timber preservation generally

Wood Workshop and Veneer and Plywood Section —Within the last few years veneers and plywood have been accepted throughout the world as extremely important commercial products and they now occupy an important place in the timber markets of the world Several Indian timbers have already been tested to ascertain their suitability for utilisation and decorative veneers and plywood and it is hoped that some enterprising firms will take up this work in India now

Chemical Branch —This Branch deals with problems involving chemical investigations and analysis

Its main function is research in connection with establishing and developing the use of many items of forest produce

The study of forest soils is also carried on in association with the Silviculturist It is hoped to develop the study of forest soils considerably in the near future

A good deal of pioneer work has been done in connection with gums, resins and other minor products

Museums —There are five museums in the Institute, namely, botanical, silvicultural, entomological, the timber museum and the minor forest product museum and according to *The Museums of India* by Markham and Hargreaves they may be described as among the best museum buildings in India

Publications —Some 300 publications and a number of educational and other works have been published by the Institute embodying the results of investigations carried out here