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Indian Timbers.

The Hill Forests of Western India.

BY

HERBERT MILLS BIRDWOOD, C.S.I., L.L.D., M.A.

Illustrated by eleven Page Plates in Colours and one Page Plate in Monochrome.
INDIAN TIMBERS.

It was from the city of Edinburgh, with its grand botanic gardens and its long array of men of science—prominent among them, in our own time, in connection with much that relates to the science of forestry, being Professors James Hutton Balfour and Bayley Balfour—that the effective impulse was received which determined the further development of the Forest Department. In 1830 the British Association met in Edinburgh and appointed a Committee to consider the probable effects, from an economic and physical point of view, of the destruction of tropical forests. In the following year the Committee presented at Ipswich a report which embodied the general conclusions and recommendations arrived at, and demonstrated clearly the importance of preserving every condition tending to maintain an equilibrium of temperature and humidity, of preventing the disappearance of indigenous forests from the wasteful habits of the people, and of taking the requisite steps for extending forest produce. The weighty evidence adduced by the Committee, and the broad views enunciated by them, so impressed the Court of Directors that, within a few years, regular establishments were sanctioned for the Madras Presidency and British Burmah. In 1836 Dr. Cleghorn took up General Michael's work, and was appointed Conservator of Forests in Madras, with Captain Douglas Hamilton and Lieutenant Beddome as his assistants, who in turn succeeded him in the office of Conservator after his transfer, first to Bengal, where he gave most efficient aid to Dr. Brandis in carrying out forest conservancy, and afterwards to the Punjab. According to Colonel Bailey, Dr. Cleghorn checked the destructive practice of temporary cultivation in the Madras forests notwithstanding the opposition he encountered. He was ultimately successful "because his well-known desire to promote native interests inspired the rulers of the country with confidence in his proposals." In 1836 also, Dr. Brandis (now Sir Dietrich Brandis, K.C.I.E.) was appointed Superintendent of Forests in Pegu, and six years afterwards was placed on special duty with the Government of India. He was the first Inspector-General of Forests to the Government of India, and held the office till 1881, when he went on special duty to Madras. His book on the Forest Flora of North-Western and Central India is a standard work, greatly prized by Indian botanists and foresters. "From the time of his appointment," says Sir George Birdwood, in his preface to the catalogue of the Indian exhibit at the International Forestry Exhibition, already referred to, "the successful future of forest conservancy in India was assured. . . . He, in fact, by his great capacity, his wise recommendations, and his personal example of enthusiastic devotion to duty, has made the Forest Department of India what it now is." We owe to Dr. Brandis, among other important services, the suggestions for the various Indian Forest Acts, which, while strengthening the hands of the Government, have secured to the people the maintenance of all the ancient rights and privileges inherited by them from time immemorial; and also the inauguration, in 1866, of arrangements for the annual supply of trained officers to discharge the duties of assistant conservators of forests in India. At first these officers were educated in France and Germany. In 1876 the student candidates were withdrawn from Germany and stationed at Nancy under an English officer. In 1885 Dr. Schlich (who had succeeded Dr. Brandis on his retirement) organised the Forest Branch of the Royal Indian Engineering College on its present footing at Cooper's Hill.

While candidates with special qualifications for the higher grades of the Forest Department are, with some exceptions, now recruited from England, it is obvious that there must be much important work connected with the executive charge of the forest ranges, into which the larger divisions are split up, the disposal of which the Government of India must entrust to officers trained in India itself. The class of Forest Rangers has been described as the "backbone" of the Department. Candidates for this branch of the forest service are trained at the Imperial Forest School at Dehra Dun, which is attended by students from all parts of India. A certain number of forest appointments has also been guaranteed annually by the Government to the students of the College of Science at Poona. A protective service of Forest Guards is also employed for the purpose of patrolling forests and ensuring compliance with forest regulations. The members of this branch of the service receive no professional training.

The Indian Forest Service thus organised has been able not only to meet the demands of India, but to help other countries also. Ceylon, New South Wales, New Zealand, the Cape, Mauritius, Jamaica, and Cyprus, as General Michael, in his paper on Forestry tells us with just pride, have all borrowed officers from India to put them in the way of organising conservancy and working their forests economically. The head of the Forest Department at the Cape and the Conservator in Ceylon are both Indian forest officers. The United States of America have also recognised the value of the work done in India by lately deputing an expert to study the methods there in force.

The forests to which the Indian Forest Act of 1878 is applicable include "reserved forests," which are State property, or over which the State has certain rights; "protected forests," assigned or yet to be assigned by the Government to village communities from reserved forest areas; "protected forests," which, as regards the proprietary rights of the State, are on the same footing as reserved forests, but are subject to less stringent supervision—only certain kinds of timber being protected, and all private rights of cultivation, pasture, and wood-cutting within the protected area being respected; and, lastly, "private forests," which are controlled only to such an extent as is necessary for their protection or for certain special purposes. The Forest Department has also the control of State plantations of timber trees.
INDIAN TIMBERS.

The area of British India, exclusive of the Native States, is about 960,000 square miles; and of this area, more than 79,000 square miles had been constituted as reserved forests before the end of the year 1896-7. About 9,000 square miles were "protected," and nearly 26,000 square miles were tabulated as "unclassed." The total area under the control of the Forest Department amounted, therefore, to about 114,000 square miles, inclusive of about 41,000 square miles leased from Native States. Of this area, which is only about 7,000 square miles less than that of the British Isles, about 32,000 square miles are closed to all animals, and about 41,000 to browsing animals only. I am unable to give any exact statistics as to village forests and private forests, but it has been estimated that the area of private forests and forests belonging to corporations and endowments is about equal to that of the State forests, and that the total area of forests of all kinds is about 25 per cent. of the total area of British India. In Great Britain and Ireland the corresponding percentage is only 4.

The corresponding figures for Europe and the United States of North America are 31 and 17 respectively. In European countries the highest percentage is reached in Servia, where it is 48; in Russia and Sweden it is 42; in Austria, 33; in Hungary, 29; in Germany, 26; in Norway, 25; and in Turkey (including Bulgaria, Bosnia, and Herzegovina), and also in Roumania and Italy, 22. In Switzerland, Spain, France, Greece, and Belgium, it lies between 19 and 15. In Holland it falls to 7, in Denmark to 6, and in Portugal to 5.

Great Britain and Ireland thus show the lowest percentage of all the countries named, while India comes seventh in the list, being bracketed with Norway.

The area of plantations directly under the Government of India and the Government of Madras is said to extend to 41,000 acres. In the Bombay Presidency the afforestation of waste tracts has been pushed with vigour, but I am unable to give the acreage. One of the plans adopted by Mr. Shuttleworth in the central division—as he has personally explained to me on the site of some of his operations on the hills near Poona—has been to sow the seeds of all kinds of forest trees and shrubs broadcast on the ground. The results of the annual sowings have been satisfactory, except in seasons when the rainfall has failed at the close of the monsoon. Hill tops and stony valleys, which, twenty years ago, were bare and unsightly, are now well covered with innumerable saplings and most refreshing verdure. Similar results have been obtained on many of the rocky hills of the Dekhan.

The review of Forest Administration in British India for the year 1896-7, by Mr. B. Ribbentrop, C.I.E., Inspector-General of Forests, shows that in that year, which is the latest for which I have any report, the State forests yielded more than 47,000,000 cubic feet of timber, nearly 100,000,000 cubic feet of firewood, nearly 135,000,000 bamboo, and minor produce to the value of nearly 3,250,000 rupees.

In the same year the exports from British India to foreign ports included 64,221 tons of teak wood, valued at nearly 7,000,000 rupees; sandalwood, ebony, and other ornamental woods, worth nearly 600,000 rupees, and such minor produce as caoutchouc, lac, lac-dye, cutch and gambier, myrobalans and cardamom, worth about 21,000,000 rupees.

The total value of exports, which reached nearly 28,500,000 rupees, was less by 6,500,000 rupees than the total value for the preceding year, the decrease being due almost entirely to the disastrous effects of plague and famine.

The gross revenue realised from forests during the year 1896-7 amounted to nearly 18,000,000 rupees, the surplus over expenditure having been 8,000,000 rupees. More than 17 per cent. of the gross revenue represented the estimated value of forest produce given away free or at reduced rates to right-holders and free grantees. When it is remembered that before 1848 the forest revenue, which was treated as a branch of the land revenue, was very trifling, the progress made in the past fifty years is very remarkable. But, as most truly observed by Sir George Birdwood, in the paper from which I have already quoted, "the annual revenue which forest conservancy has as yet provided is utterly insignificant when compared with the capital value of the Indian forests redeemed by the British Government from certain destruction."

It would indeed be strange if such results had been achieved without opposition. I have already spoken of the conciliatory course adopted with obvious advantage by some forest administrators towards those whose privileges were affected by the stringency of the new regulations. Villagers on the outskirts of forests had for generations cut firewood and grazed cattle therein, and cleared patches for cultivation without hindrance. The policy aimed at has been to stop the exercise of privileges incompatible with the continued existence of forests, and to allow others as far as possible. But the necessity for a restrictive policy at all, while necessarily distasteful to right-holders, was not readily accepted as right by the local officers of the Indian Civil Administration, with whom it has always been an honourable tradition to seek above all things the happiness and contentment of the people. They were unable to look with favour on measures which seemed to indicate an excess of zeal on behalf of the State, and to be in needless derogation of privileges long enjoyed without much apparent injury to public interests. It has been suggested that though the accumulated mischief caused by neglect of conservancy during a long series of years, is incalculable, yet it is not possible always to detect any.
34—*Aquilaria agallocha*  A large evergreen tree of Sylhet. Wood soft, even-grained, and scented when fresh cut. In old trees are masses of harder and darker wood, which is the famous Eagle-wood of commerce. *Manson.*
37.—*Cedrus libani* var. *Deodara*. A very large evergreen tree. Bark greyish-brown, with numerous fissures, which give a reticulate appearance. Wood fairly hard, strongly scented, and oily. *Gambill*.

38.—*Cinnamomum glanduliferum*. (Nepal Camphor wood.) A large tree of South Himalaya and Assam. Wood rough, pale-brown, and highly scented, with a strong smell of camphor when fresh cut. *Manson*. 
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THE THIRTY-SEVEN NATS,
A Phase of Spirit-Worship prevailing in Burma.

BY

SIR RICHARD CARNAC TEMPLE, BART., C.I.E.

In this work the story of the Spirit-worship of the Burmese races is explained in all its forms and the difference between the indigenous and imported varieties is clearly shown. The extent to which each variety overlaps and influences the rest is also fully brought out. In this way, an important part of Burmese social life, explaining many of the notions and beliefs of the people, usually hidden from the European observer, is made accessible to enquirers.

An account of Burmese Spirit-worship in general, with an explanation of the influence of the Buddhist and Brahmanic beliefs introduced from India on the west, and of superstitions added by the Shans on the east, is accompanied by a relation of the more prominent ideas current among the many Wild Tribes and underlying the innumerable ceremonial customs followed by the people. All these matters are treated as leading up to the main theme of the book, which is an Account of the Thirty-Seven Nats, or universally recognised Spirits of the Burmese, who play so overwhelming a part in native belief and superstition and are, nevertheless, so little known. The whole of the Nats, corresponding roughly to the “devils” of Southern India, the godlings of Northern India, the Saints of Islam and the supernatural heroes of many parts of the world, are treated historically and legendarly in detail.

The whole work is profusely illustrated by 13 full-page coloured illustrations and 11 in black and white from unique vernacular illustrated MSS. chiefly in the possession of the author. There are, in addition, about 30 coloured head and tail pieces from a MS. collection of drawings in the India Office Library, made about 1826; about 40 type blocks from photographs of a beautiful collection of carvings in wood in the possession of the author; and various other original type blocks interspersed about the text. The illustrations, which are fully explained, afford an opportunity of grasping the religious notions of the Burmese and the condition of the art of illumination among that people never before offered to European readers.

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