



COLONIAL INTRUSION AND NATIVE FLORA: EXPERIMENTS AND EXTRACTION (1864-1947)

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RESEARCH ARTICLE



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Abstract

Botany acted as the intellectual basis for forestry research in India and agricultural experiments as well. Even Richard Temple, who was the Lieutenant Governor of Bengal from 1874-1877, wanted the foresters to be trained in botany. Even the first Inspector General of Forests in India, Dietrich Brandis was a botanist in training. It was only after the establishment of Indian Forest Department in 1864 did a specialized cadre grew up. In the initial period, amateur colonial officials assumed the role of botanists. However, at a later stage they were replaced by trained botanists. In the period post 1750, the new group of explorers who came to India received greater support from their peers in England.

The process of conservation of forests along the principles of Scientific Forestry began in India due to the efforts of Sir Dietrich Brandis. During his tenure as Inspector General of Forests in India, professionals who were trained in German forestry technique came to the service of the Indian Forest Department. Prior to that the conservation and management of forests were looked after primarily by the botanists. Around this time the Bengal Forest Department also came to be constituted (1864). After the establishment of the forest department, many of the botanists were working there. Dr. T. Anderson, the Superintendent of the Royal Botanic Garden in Calcutta performed the duties of the Conservator of Forests in Bengal. The present paper will attempt to look into how individual botanical explorations were gradually decreasing and the ones conducted were largely motivated by colonial interests, with particular focus on the Bengal Forest Department.

Keywords: *Forests, Botany, Botanists, Colonial Bengal, Forest Department*

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By the eighteenth century, the English East India Company was able to oust other European companies from the subcontinent. With the victory of English East India Company at the Battle of Plassey (1757) a political stronghold was established which continued till 1856. The initial interest in tropical science, technology, medicine and religion resulted in the growth of The Asiatic Society (1784), Calcutta Botanical Garden (1787), Agri-Horticultural Society (1820), Serampore mission (1799)¹. Botanical and geographical investigation drew young explorers and botanists to the subcontinent. During the rule of East India Company, forests largely came to be viewed as an impediment to agriculture.

“A colony like this (India) blessed with advantages of soil, climate and population so eminently above its mother country, seems by nature intended for the purposes of supplying her with all raw materials and it must be allowed for a colony yielding that kind of tribute, binds itself to the mother country by the strongest and most indissoluble of human ties, that of common interest and mutual advantage.”²

The following remark has been made by Joseph Banks, an eminent figure in the scientific world during the eighteenth century. Perhaps this tie was strongly manifested in the sphere of forestry more so than other. While writing about the inception and subsequent growth of the various institutions under colonial rule, Deepak Kumar points out that Botany acted as the intellectual basis for forestry research in India and agricultural experiments as well. Even Richard Temple, who was the Lieutenant Governor of Bengal from 1874-1877, wanted the foresters to be trained in botany³. Dietrich Brandis, the first Inspector General of Forests was a botanist in training. It was only after the establishment of Indian Forest Department in 1864 did a specialized cadre grew up.

The advancement in scientific sphere also led to an awareness about the ancient civilisations of Greece and Rome, Egypt, China and India as were reflected in the works of Early Orientalists. These Orientalists were in search of a common philosophy that united all mankind. This aim of reviving the ancient heritage was also a part of ‘White Man’s burden’. However, there was no uncritical acceptance of the past. This reverence for the ancient heritage and the search for it was best personified in William Jones.⁴

Botany as the predecessor of Forestry

In the initial period, amateur colonial officials assumed the role of botanists. However, at a later stage they were replaced by trained botanists. In the period post 1750, the new group of explorers who came to India received greater support from their peers in England. Among the several fields of investigation, botany was of utmost important. The continued interest in Indian flora drew European explorers. In 1759, James Anderson joined the English East India Company and in 1778 obtained a large land near fort of St. George from the Madras government where he conducted experiments. He introduced insects, various commercial plants such as coffee, sugar cane, European apples and American cotton⁵. By the middle of seventeenth century the English East India Company, in its quest of actively cultivating medicinal plant, set up Botanical Gardens at Samalkot in Carnatic and Calcutta.

A crucial role in this respect was played by William Roxburgh. His greatest achievement lay in bringing 2200 species of plants and 800 species of medicinal plants to the Calcutta Botanical Garden⁶. William Roxburgh's correspondences reveal that there was extensive interchange of information about medicinal plants not only between Indians and Europeans but among other Europeans as well, in spite of severe colonial rivalry⁷. His regular contact with the Danish Moravian Mission in Tranquebar and the French made him aware about the medicinal remedies employed by them. William Roxburgh's work was published in '*Asiatik Researches*', sample of which was also sent to Europe for further examination. Roxburgh's work reflected a shift towards more systematic study of Indian *Materia Medica*. According to Mark Harrison, the introduction of the Linnean system in European Botany and the Economic and military imperative contributed to such a shift.⁸

A contemporary of William Roxburgh, William Jones's treatise on '*Botanical Observations on Select Indian Plants*' emphasised on the uses of Indian medicinal plants⁹. Jones was not in favour of the Linnaean system and thus collected the Sanskrit names of the plants and sought their medicinal properties. Nathaniel Walliach, who succeeded Roxburgh as the superintendent of the Calcutta Botanical Garden, was in favour of preserving the Linnaean model of the garden¹⁰.

The dedicated study of Indian flora continued even at a later period. John Forbes Royle, who was the curator of the Saharanpur Botanic Garden from 1823-1831, conducted detailed study of the Himalayan flora for its better utilization. He even conducted experimented with the rhea fibres found in Assam and the hemp of the Himalayas. For better utilization of these fibres, Royle corresponded with the Royal Society of Arts and the Commercial Association of Manchester. The extensive travels undertaken by Joseph Dalton Hooker from 1848 to 1850 throughout Bengal, Sikkim, Nepal and the Khasia Hills helped him learn about the Indian flora further. This resulted in production of *Flora Indica* and *Himalayan Journals* in 1855.¹¹

Despite such efforts there was no separate imperial cadre for the botanists. Even the Botanical Survey of India which was established in 1890 failed to acquire a 'structural homogeneity' like the GSI or Survey of India. Deepak Kumar points out that the lack of such centralization proved to be rather an advantage for botanists as they were not tied to any particular department¹². They were dispersed over a number department such as revenue, agriculture and medicine. In compilation of pharmacopoeias, botanists played a crucial role. Joseph Hooker provided assistance to William Dymock and Warden while preparing *Pharmacographica Indica*. Nathaniel Walliach, the Superintendent of Botanical Gardens, assisted O'Shaughnessy while preparing *Pharmacopeia of India*¹³. The Superintendent of Botanic Garden in Calcutta was also the Superintendent of the Cinchona cultivation in Bengal. After departure of Nathaniel Wallich, scientific surveys and classification received lesser attention from the botanists as compared to acclimatization of exotic plants, seeds and development of vegetable technology. G.S. Gamble, a botanist even said, 'No good will be done by making the Botanical Department Imperial-the officer in each Province must be under the Local Government in its Revenue Secretariat.'¹⁴ It is however, important to remember that there was a deeper impulse of Colonial Botany towards the discursive framing of Indian botanical material which dissociated them from the socio-cultural milieu.¹⁵

After the establishment of the forest department, many of the botanists were working there. Dr. T. Anderson, the Superintendent of the Royal Botanic Garden in Calcutta performed the duties of the Conservator of Forests in Bengal.

Beginning of Forest Conservancy in Bengal

Forestry in Bengal was 'an endeavour of state making in Bengal through laws, administrative machinery, scientific planning etc. from the late nineteenth century'¹⁶.

From the outset, there were vast discrepancies between the visions of the Centre and the implementation of the conservancy ideals at the local level. This coupled with conflict with the Revenue Department created hindrances¹⁷. The Bengal Forest Rules of 1871 distinguished between reserved forests and open forests. In the process, they recreated the difference between imperial forests and village forests which was introduced by the Bombay Forest Committee in 1863. The distinction was later institutionalized by the Indian Forest Act of 1878. William Schlich was quick to note that with the exception of Sundarbans, most of the protected forests were in non-regulation provinces and question of local rights were one of the serious issues there¹⁸. Following the lines of Sivaramakrishnan, it can be agreed that more often than not centralized management was not successfully implemented. Rather alternative forest management system had to be devised keeping in mind the historical peculiarities and local demands¹⁹.

In September 1864, Dr. T. Anderson undertook enquiries at the request of the Government of India. During this time, he assumed the responsibilities of Conservator of Forests of Lower Provinces while being the Superintendent of the Royal Botanic Gardens in Calcutta and the head of Cinchona plantations²⁰. As the Conservator, he wrote letter to the Junior Secretary of the Government

of Bengal, H.L. Harrison highlighting that the Khas jungles and the forests in Cachar remained open to public for purposes of wood and timber cutting as well as the Hill tribes for the purpose of wood and timber cutting. Moreover, the inhabitants of the forests were also exempted from giving any charges for cutting or carrying timber for personal use. The hill tribes of the nearby area too were exempted for the portions of the forests they cleared and cut away. The only form of toll which was collected was at Sealtekh ghat. The highest rate was of Jarul timber at four rupees for any timber above 20 cubic feet which was same as any non-timber wood above 24 cubits.²¹ Under the directives given to the Bengal Government by Dietrich Brandis as the Inspector-General of Forests, a plan was laid out to establish forest conservancy along European lines while also surveying the local situations. Under T. Anderson and Leeds, conservancy efforts were mainly focused in the region of North Bengal. In addition to these, demarcation of the forests of Sikkim and Bhutan took place. However, the quantity of valuable timbers was not much in this region and it was blamed on the activities of private contractors and shifting cultivators.²²

Sivramakrishnan has noted that despite the practice of planting abandoned village sites with exotic seeds, provided by the Botanical Gardens in Calcutta, prevalence of this practice was never quite spread out like Punjab, Madras or elsewhere. Experiments with Mahogany was conducted in North Bengal and at the lower elevations, teaks were planted²³. Despite such efforts it could not be ignored that the main aim of the Forest Department was to settle cultivators and compel them to clear the lands on which teak would grow²⁴.

The mixed plantations which comprised of Toon, Teak, and occasionally Sal, served the twin purposes of providing wood for tea boxes, charcoal and construction as well as timber. Extensive surveys were carried out. Even as late as 1860s a variety of ownership existed ranging from local landowners, tenants, peasantry to private contractors etc., and arrangements of forests²⁵. The land ownership situation in North Bengal was less complicated in comparison to other parts of Bengal. Thus, creation of Reserved forests occurred first here than in Sundarbans and Chotanagpur region only at a later time. Moreover, the areas which comprised of valuable timbers such as Sal and Sisso, fairly level and closer to waterways was also brought under reservation quickly²⁶.

Reservation was extended to Chotanagpur and Sundarbans when it was found out that exploiting these forests was cheaper, despite forests being scarce. The creation of the five forest division was completed in 1875 by William Schlich. These were Darjeeling, Jalpaiguri, Palamau, Sundarbans and Chittagong. Brandis had set the agenda of reserved forests in his Report of 1879-1880 primarily as- fire protection, road building cultural operations and timber removal²⁷. It is hardly surprising to find that the annual cut in these Reserves were directly proportional to the development of Railways and Tramways. The Governor-General of Bengal at the time, Charles Elliot, did not however agree with it. He considered the main goal of Forest Department as afforestation²⁸.

Even after end of Schlich's Conservatorship, the predominant themes in forest conservancy were fire protection, restriction over grazing and removal of Sal timber remained the predominant themes in Forest Conservancy of Bengal. The area of Reserved forests increased from 4322 in 1883 to 5880 sq. miles in 1900 and the total managed forest areas stood at 13,589 sq. miles at the end of 1900²⁹.

Afforestation and Researches

Attempts at afforestation were rather few. There were proposals to form an afforestation unit in the Kalimpong Division was suggested to deal with the large slips at Dalepchen eroded lands and in the Development area of Kalimpong town. The plan was then put to the Civil Department for consideration.³⁰ In southern Circle, no works of afforestation was considered under the given year. However, in the Southern Circle there were efforts at establishing experimental plantations. In Sundarbans, experiments were conducted on Golpatta (*Nipa fruticans*) which produced satisfactory results. Experiments plantation were established for species such as *Shorea Robutsa*, *Xyla dolabriformis*, *Artocarpus chaplasha* etc., In Dacca-Mymensingh Division, experiments were conducted to convert parts of useless miscellaneous forests in Atia to thatch grass which were in great demand³¹.

With the onset of the Second World War, steady expansion was done in order to meet the war time requirements. As the foreign sources were virtually closed, there was an overall increase in the demand for timber in all the divisions. In addition to this, there was also a steady expansion in the use of wood fuel to save transport on coal³². Bengal was comparatively little affected by the war until towards the end of the year when the danger of Japanese invasion, particularly in the vicinity of Chittagong, became a serious problem, which necessitated the issue of provisional schemes for evacuation of the forest staff from the danger areas. The Senior Conservator of Forests of Bengal, T.M. Coffey and S.J. Curtis, Conservator of Forests, Southern Circle, Bengal appreciated the efforts of the officials which enabled the department to contribute to war efforts³³. Due to the war, there was an increased demand in timber. Another factor which contributed to the increase demand of timber was its requirement in the tea gardens of Chittagong. High demand for firewood continued as late 1946-47, in the tea gardens. Even in the districts of Darjeeling and Kurseong there was high demand.³⁴ However, the war disrupted the extraction of minor forest produce which decreased during this period. The war created an unsettled condition, particularly in South Bengal and there was a constant threat of enemy invasion.³⁵

Forest School

In 1878 Brandis proposed to establish a Central Forest School at Dehradun and GOI accepted the proposal. The school was an instant success and theoretical instruction started in 1881. The papers taught were silviculture, mathematics, surveying, botany and elements of chemistry, physics and law. The course was open only to the natives working for the Forest Rangers certificate.

The superior officials were all Europeans trained in European colleges like Coopers College and Nancy. But professional botanists wanted a still better treatment of the subject. J. Wilson, the Revenue Secretary conceded, 'It is a reproach to the Government of India that with its splendid and valuable forest so little has been done in this country towards the development of Forest Science as distinguished from Forest Practice and it is high time that reproach be removed. In 1906 the status of the school was raised to that of a college and what is more named the Imperial Forest Research Institute, signalling a shift to research.³⁶

There existed regular interaction between the Imperial Research Institute at Dehradun and Bengal Forest Department³⁷. It played a key role in collection of timber specimens. The timber specimens together with the herbarium specimen were continued to be supplied by the Divisional Forest Officers at the Forest Research Institute in Dehradun. Even the collection of specimens of doubtful or unknown plants were continued and sent to the Forest Botanist at the Forest Research Institute in Dehradun and to the Curator of the Herbarium at the Royal Botanic Garden, Shibpur for identification³⁸.

Bengal Forest school was also established in order to facilitate training of forest officers. As late as 1945-46, twenty-seven students underwent the Foresters' Course. Twenty-three students came out successful including one with honours. The General standard was average³⁹. Even foresters were deputed for training the course in 1946-47.

Conclusion

The individual botanical explorations which flourished due to the efforts of botanists like William Roxburgh, Nathaniel Wallich, Joseph Dalton Hooker and others saw a decline at a later period. Thus, even though botany formed the intellectual basis of forestry in India and many botanists, including Dietrich Brandis himself, began the initial task of forest conservation, it cannot be denied that such attempt at knowing the Indian flora ceased to be practised under Forest Department. The researches that were conducted by the botanical department under the Imperial Forest Department were fundamentally different in character. These researches were fuelled by colonial interests. Encouragement of economically viable plants were encouraged which had long ecological implications.

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Endnotes

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⁹ Asiatic Researches, no.4 1793-94, 231-303

¹⁰ Deepak Kumar op. cit.,

¹¹ Kumar Deepak, '*Science and the Raj*', p.39

¹² Kumar Deepak, '*Science and the Raj*', p.79

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¹⁷ K. Sivaramakrishnan, '*Modern Forests*', p.150-51

¹⁸ Ibid., p.151

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²⁰ E. P. Stebbing, Harry Champion, F.C. Osmaston, '*The Forests of India and the neighbouring Countries*', Vol.2, Asiatic Publishing House, Delhi, 2010, p. 371

²¹ Letter No.36, dated 23rd April 1867 from the T. Anderson, Conservator of Forests of Lower Province to H.L. Harrison, the Junior Secretary to the Government of Bengal

²² K. Sivaramakrishnan, '*Modern Forests*', p.133-34

²³ Ibid., p.136

²⁴ Ibid.,

²⁵ Ibid.,

²⁶ Ibid.,

²⁷ K. Sivaramakrishnan, *Modern Forests*, p.136-137

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