Kew Garden and the British Plant Colonisation in the 19th Century

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Abstract: *This article presents an analysis of the role of the Kew Garden in British plant colonization in the Asian and African countries which ultimately led to the expansion of the British Empire. Kew Garden played a major part in the development of several highly profitable and strategically important plant based industries in the tropical colonies. It also contributed to the growth of economic botany in England. These new plantation crops complemented Britain's home industries to form a comprehensive system of energy extraction and commodity exchange which for a time, in the 19th and early 20th centuries, made Britain the world's superpower. This article intends to examine the role of the Kew Garden in encouraging and facilitating plant transfers which had extraordinary impact in parts of the world subject to western imperial hegemony in the 19th and 20th centuries. Kew Garden was a great scientific research centre staffed by trained Botanists. The new technical knowledge of the Botanists of improved species and imperial method of cultivation and harvesting was transmitted to the colonial planters and was a crucial factor in the success of the new plantation crops and plant based industries.*

Key Words: *Royal Botanic Garden, herbarium, taxonomy, economic botany, horticultural value, tropical plantation.*

Kew Garden: The Formative Stage

Kew Garden as a public scientific institution grew out of a private royal garden started in 1759 by princess Augusta, mother of George III, on the

grounds of a royal mansion lying near the Thames just upriver from London. One of the most important traditions of Kew has been that science has always happily united with art. The princess was responsible for the founding of this tradition. In 1759, a 28 years old Scot, William Aiton, was appointed to manage the garden.[1] He spent the rest of his life at Kew tending and studying the rapidly increasing collections. Apart from being the first head gardener at Kew, his claim to fame lies in his production of the first of the catalogues of plants for which Kew has since become notable. With the help of other prominent botanists Aiton spent 16 years compiling a three volume Hortus Kewrasis in 1789.[2] It was a list of the 5600 species of plants growing at Kew. Aiton died in 1795. He founded the Kew tradition of practical skill in gardening combined with the knowledge and thoroughness of a good botanist. However Sir Joseph Banks played a great role in the formative stage of the Kew Garden. He was the friend of the royal family. He was also the President of the Royal Society. He was a wealthy amateur botanist. He was the first unofficial director of the garden. He managed the garden until his death in 1820 after which the garden vegetated. However this decline came to an end in 1841 when the gardens and 200 acres of the royal grounds were made over to the state, pursuant to a report by a Treasury Commission. The royal associations continued with further gifts of land and ceremonial appearances which lent the prestige of the crown to the garden. Therefore the garden was properly called the Royal Botanic Garden.

The Treasury Commission, under the chairmanship of the botanist Joshep Lindley, urged the establishment of a National Botanic Garden which would coordinate the efforts of many gardens in the Birtish colonies and dependencies such as Calcutta, Bombay, Saharanpore, Mauritius, Sydney and Trinidad whose utility was wanted for unity of purpose and central direction.[3] The heart of the report lies in the following passage:

'A national garden ought to be the centre round which all minor establishments of the same nature should be arranged …..receiving their supplies and aiding the Mother Country in everything that is useful in the vegetable kingdom. Medicine, commerce, agriculture, horticulture and many

valuable branches of manufacture would benefit from the adoption of such a system. From a garden of this kind government would be able to obtain authentic and official information on points connected with the founding of new colonies; it would afford the plants those required.'[4]

This report, with its emphasis on economic botany, served as a charter for Kew Garden because there was no formal legislation to guide the first directors other than this. Funding was by annual appropriation of Parliament, and an annual report on the condition of the garden and the expenditure of monies required from the director.

The proposal had strong support from the Duke of Bedford, from his son, Lord John Russel, and from Lord Monteagle, the Chancellor of the Exchequer. The Lord Steward of the Royal Household was reluctant to give up part of his personal empire. But the proposal was carried in Parliament and the Kew Garden passed under the direction of the Commissioner of Woods and Forests. However, it was not to the bureaucracy but to its own directors, who enjoyed a remarkable freedom of action, that Kew owed its success. However, the transition from royal garden to state institution was effected by the same group who were active in the learned societies such as aristocrats, amateur botanists and certain landed magnates who shared their interest in natural science and were simultaneously influential in government. These patrons of botany included several Whig politicians and cabinet members, notably Lord John Russel, Secretary of State for the Colonies.[5]

Hookers at Kew: Growth of the Garden

Kew Garden turned into a true scientific research institution due to untiring efforts of William Jackson Hooker and his son Joseph Dalton Hooker. W.J. Hooker was the first appointed Director of Kew Garden. He was one of the few professional botanists of the time. He was Regius Professor of Botany at the University of Glasgow. He was also the director of the Glasgow Botanic Garden and founder editor of several botanical journals including the *Journal of Botany and Icones Plantarum*. When he took office at Kew

in 1841 he had to refurnish the gardens after years of neglect, recruit staff and formulate policy. The man Kew needed must of course be a botanist of authority who knew the plants of every country in the world. He must be a taxonomist, able in the herbarium, to classify and name plants so as to establish their unquestionable identity, and out of doors and in his glass houses to show the living plants in their natural orders, families and species to make the acres at his disposal worthy of the name of the Botanic Garden. He must at heart be a true gardener as well as a naturalist.[6] W.J. Hooker was this supremely excellent person. He had catching enthusiasom. The first specimen ever to be found in Britain was the moss namely *Bushanamia aphyllia*. It was discovered by W.J. Hooker.[7] After meticulous examination under the microscope he had noted the detail differences. His identification was finally and undisputedly proved. W.J. Hooker was one of the greatest figures in the history of scientific gardening. He could well claim a place among pioneer botanists or as a pioneer in the enlightened management of scientific institutions. He travelled widely. He was one of the first to study the living native plants of the remote parts of Scotland.[8] The reputation of Kew increased not only within the Empire but throughout the world as W.J. Hooker tirelessly worked behind the scenes. He was very careful to ensure that no important expeditions of survey or exploration set out without a Kew botanist among the staff. The work of these men resulted in the formation of a large collection of 'harbarium' of dried and pressed specimens which were classified and from which invaluable 'floras' or catalogues of the plants growing throughout the Empire were later compiled.[9] Kew became a gigantic clearing house of information and an international centre of botanical study. Hooker was also responsible for ensuring that as many of those plants as possible were grown in the garden so that the living thing as well as the botanist's specimens would be studied. For this purpose tropical Aquarium was built. It was due to his foresight and planning that the seeds of the tree bearing '*Peruvian bark*' which yields quinine, the valuable drug used for treating tropical fevers, were collected in the Andes mountains of South America. The trees were raised from the place and planted in Ceylon and other parts of the Empire.[10] He also made the garden popular to the

British public. It was due to display functions of the garden. All botanical families and all ecozones were represented in the display collections. Hooker's collections formed the nucleus of what had come to be the world's largest herbarium, with seven million herbarium sheets. Systematic botany and botanical drawing were Hooker's special forte. Of the 8000 plants in his publications eighteen hundred were by his own hand.[11] In 1848 Hooker and his colleague John Stevens Henslow set up a Museum of Economic Botany at Kew, where specimens of useful plants were available for study and reference. The voyages of exploration and colonial expansion had greatly enlarged the range of Kew's collections of Non-European plants. W.J. Hooker imported six times as many plants for Kew Garden in 15 years as had been imported in the previous century.[12] It is to W.J. Hooker above all others that the British people owe Kew Garden in its present form.

The traditional framework of Kew Garden had been set by William Hooker. His son Joseph Dalton Hooker continued it after 1865 with even greater emphasis on economic and colonial botany. He succeeded his father as Director of the Kew Garden. He had been Assistant Director for a decade and was therefore perfectly familiar with the work done at Kew with the layout of the garden and with the researches centred on the Harbarium and Library. The major departmental innovation at Kew was the Jodrell Laboratory in 1876 for the study of plant physiology and cytology, an indication of the increasing complexity of science and technology. Throughout the Directorship of Joseph Hooker, he was immediately responsible to the First Commissioner of Works. Joseph Hooker brought great enthusiasm in directing and improving the garden. In particular he arranged for a new range of greenhouses to be built and for a new system of bearing in the 25 houses and three museums.[13] Various improvements were made by Joseph Hooker. Hooker's major improvement in the *Arborerum* portion of the garden was the planning and planting of the new Pine trees. Hooker was responsible for a number of structural improvements to the garden not or not directly concerned with planting. One of these concerned with the water supply - a most important matter in horticulture. Between

1866 and 1888 Hooker instituted a great change in the water system. Water was taken into the lake from the Thames, pumped into filter beds near the stables and thence to a reservoir in Richnond Park. From the park the water came back to the gardens under a good pressure.[14] This arrangement continued for a long time. A new range of green houses known as the T-range from its shape was erected in 1888-89. This range was suitable for the cultivation of tropical plants including tropical scquatics and orchids. A very large number of plants can only be grown at Kew in the protection of greenhouses. On the average the temperature conditions at Kew were suitable for most species from temperate climates.[15] Hooker was commissioned to collect plants for Kew. For this purpose he participated in scientific expeditions to Antarctic and tropical countries. He also visited Darjeeling and Sikkim. Hooker wrote a number of books like *Himalayan Journals: Note of a Naturalist in Bengal, Sikkim and Nepal Himalayas; A Sketch of the Flora of British India; illustrations of Himalayan Plants* and *Outline of the Distribution of Arctic Plants*.

Main Functions of Kew Garden

As a public garden Kew had multiple functions - displays, research information, storage and retrieval, publication, plant collection and disbursement. As a great scientific research centre Kew Garden was staffed by trained botanists who were at the top of their profession. Some were specialists in taxonomy and classification. A caustic critic once said that Kew Garden was a place where men attached barbarous binomials to dried foreign weeds. Kew Garden made the public to understand the utility of scientific taxonomy. Classification of plants was important and this was done by the taxonomists of Kew Garden. They tried to establish the true relationship between the world's plants both spatially and temporarily in an international nomenclature understood by the botanists in their native languages. Some of the researchers of Kew worked at the microscopic level on plant physiology and cytology. Men from Kew sailed on Admiralty and other expeditions to collect and study plants they went to New Grenada, California, Oregon, Japan, Formasa, Korea the Cameroons Gaboon river, Fernando Pa, the Niger Zambesi, East Africa, Madagascar, the Himalayas,

Canada, British Columbia, Arctic America, Fiji Islands, Torres Straits, the Pacific Islands, Ecuador, and the Azores.[16] In fact, Kew Garden played a critical role in generating and disseminating useful scientific knowledge which facilitated transfers of energy, manpower and capital on a worldwide basis and on an unprecedented scale. More particularly Kew Garden encouraged and facilitated plant transfers which had extraordinary impact in parts of the world subject to Western imperial hegemony in the 19th and 20th centuries. A corps of scientists serving the Kew Garden improved and developed the plants. They were removed from other places. This new technical knowledge of improved species and improved methods of cultivation and harvesting was then transmitted to the colonial planters. This was a crucial factor in the success of the new plantation of crops and plant based industries. Kew Garden, directed and staffed by eminent figures in the British scientific establishment, served as a control centre which regulated the flow of botanical information from the metropolis to the colonial satellites and disseminated information emanating from them. Much of this botanical information was of great commercial importance especially in regard to the tropical plantation crops—one of the main sources of wealth of the British Empire. Decisions taken at Kew Garden had far-reaching impact on colonial expansion. The botanists of Kew Garden suggested where to find a plant that would fill a current demand and how to improve this plant through species selection, and new methods of cultivation. They also informed where to cultivate this plant with cheap colonial labour and how to process this product for the world market. Thus the botanists of Kew garden played a major role in making colony a viable and profitable part of the British Empire.

Plant Collection and Distribution : Origin of Economic Botany

A notable feature of Kew Garden was the practice of sending collectors to distant countries for the purpose of transmitting plants and seeds to the garden. The next task of the garden was to send plants and seeds of economic and horticultural value to all parts of the Dominions and colonies where conditions might be suitable for their cultivation Among the plants listed as having been transferred in this manner were coffee, oranges bananas,

pineapples, mangoteen, almonds, tung oil seeds chaulmoogra, epecacuanha, Artemisia, pyrettrum lonchocarpus and mahogany etc.[17] Exploration also had commercial implications. Joseph Hooker was engaged in surveying the border between Bengal and Sikkim in 1847-1851 for the Government of India. He collected nearly 7000 specimens of Himalayan plants which he brought back to Kew. Among these plants were 43 species of showy rhododendron which were cultivated in the great estates of England and Scotland. Those plants with economic possibilities were placed in the Kew greenhouses, studied and sometimes improved by hybridization and then sent out to the colonial gardens and botanical stations for trial and distribution to planters. In this way Kew became a depot for the interchange of plants throughout the Empire. Packets of seeds and letters of advice went out by the royal mail steamers from Kew to the directors of the satellite gardens in the tropics and subtropics around the world. Projects of plant exchange with the colonies included the sending of tea plants and seeds to Jamaica, ipeeac and mahogany raised from seed at Kew to India, papyrus to India, cork oaks to Punjab, an improved variety of tobacco to Natal, both tobacco and cinconna to St-Helena and Liberian coffee grown at Kew, to both the East and West Indies, pineapples were sent to the Straits Settlements. Plants of the plam family, yielding oils, and fibres were housed for study and display in the Green Palm House at Kew and distributed from one tropical colony to another.[18]

Conclusion

Kew Garden and its affiliates had an important role in empire building by virtue of scientific research and the development of economically useful plants for production on the plantations of the colonial possessions. One of the functions of Kew Garden was seed and plant transfers closely connected with colonial expansion. It was the guiding force in plant transfers within the Empire and of the research and development programmes necessary to achieve commercial success. The scientists of Kew Garden extended their knowledge of the world's flora, its habits of growth, its geographical distribution and finally the application of this knowledge to enrich the

Empire. In the 18th and early 19th centuries the commercial and scientific voyages of discovery had opened up the whole world in the botanical species to European botanists. In England, Joseph Hooker, Robert Brown, Charles Darwin were attached to scientific expeditions sponsored by the Crown and Kew Garden. Thousands of plant specimens were brought back for study in Kew libraries and herbaria. The number of botanic gardens grew rapidly. This was an era of economic botany when the usefulness of new plants to the national economy was prominent in the minds of the purest taxonomists. Every new plant was being scrutinized for its use of food, fiber, timber, dye or medicine. Kew Garden consciously served the state as well as science and shared the mercantilist and nationalist spirit of the times.

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