

A bit of western history of bamboos in cultivation, contemporary community networks and Bamboo Pioneers

European Bamboo Expo, Dortmund GERMANY 2-3 June 2023

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For ages human societies have searched for plants outside their communities for solutions to everyday needs and for their well-being, and this includes collecting plants for landscape use. Plant pioneers went out in search of botanical candidates to bring back for cultivation, food and beauty. Consequently, the basic cultivation of plants led to the evolution of horticulture.

In Asian gardens, bamboo easily found an important place for primarily two reasons. First, bamboo has strong symbolism and spiritual significance, and secondly, it is a source for many daily utilitarian items, practical use as a building material, and is a food source. It is no surprise bamboo is found cultivated throughout villages for local use and outside temples in reverence to its inherent symbolism.

Bamboo use in modern horticulture has been widely documented ever since early plant collectors of the Victorian era brought plants from far-off places like China, Japan, and Chile, to England and Europe. In 1868, William Munro's *Monograph on the Bambusaceae* to the Linnean Society of London brought scientific attention to these plants, but it was the publishing in 1896 of *The Bamboo Garden* by A.B. Freeman-Mitford that brought these exotic plants into 'fashion' throughout the British Isles. Freeman-Mitford describes the many garden varieties of bamboo introduced into England in the nineteenth century, however even at that time, the frustration of proper names in the bamboo world was already felt and discussed extensively.

Across the globe, a young German who once was curator of the Royal Botanical Garden herbarium in Calcutta but left for Indonesia to learn all he could from bamboo, Wilhelm Sulpiz Kurz published a paper on *Bamboo and its Use*, which appeared in 1876. Unfortunately, Kurz died prematurely before finishing an account of bamboos in India, but his observations, notes and specimens were later used by James Sykes Gamble for his monograph on the bamboos of British India. Gamble was born in London and schooled in France, and served as Director of the Imperial Forest School in Dehra Dun, India for almost ten years, from 1890-1899.¹

Around the same time, an Englishman, Sir Ernest Satow published a book which was essentially a translation of a Japanese work by Katayama Nawohito, *Nihon Chiku-Fu*, published in 1885. Satow's book, *The Cultivation of Bamboos in Japan*, published by the Asiatic Society of Japan in 1899, provided many Latin names for most of the species, but most of these were invalid. What are extremely helpful in this book are the Japanese names for the bamboos, which have remained the same over centuries.²

Proper naming of bamboos was, and still is, a difficult process. Nomenclature of plants is based on flower parts (the Linnaean system), however most bamboos flower infrequently, sporadically, or rarely at all. Therefore, the literature of horticulturally significant bamboos throughout the past 400 years shows a confusing conundrum of names.

In 1878 Sir Dietrich Brandis of Germany, working with the British on forestry matters in Burma and India, established the Imperial Forest School, and later published a remarkable paper (considering he did not work principally on bamboo) in 1907 on the structure and form of bamboo leaves, leading to progress in the classification and further understanding of bamboos.³

Along with Satow, the late 1880's brought about publications of various bamboos by a botanist at the Museum National d'Histoire Naturelle in Paris by the name of Adrien Franchet. Franchet is responsible for describing some very interesting woody bamboos – the curious *Glaziophyton* from Brazil, which he named in honor of the French landscaper and botanist from Rio de Janeiro, M. Glaziou (1889), and *Fargesia*, which he named for the French missionary in the Sichuan province of China, Abbe Farges (1893).⁴

In 1906, Jean Houzeau De Lehaie, a Belgian, began rating a periodical bulletin entitled, *Le Bambou son Etude, sa Culture, Son Emploi*. He states, 'Our aim is the felicity for botanists and lovers of Bamboo.... to let better know the horticultural value of these plants and, giving information on the process of culture and on places they can be obtained, to spread as much as possible their use in parks and gardens.' Written in the French language, this no doubt was a great resource for those eager to plant bamboo in appropriate climates throughout Europe and was followed by another French work: *Les Bambusees – Monographie, Biologie, Culture, Principaux Usages* by E.G. Camus in 1912. Although these publications revolved mostly around the use of bamboo in gardens, authors frequently commented on the remarkable diversity of species suitable for a variety of utilizations for the benefit of society and the environment.

Collecting, trading and propagation of bamboos continued across European countries, the United Kingdom, and the United States. In August 1961, the United States Department of Agriculture printed *Growing Ornamental Bamboo*, written by Robert A. Young and J.R. Huan (USDA Bulletin # 76). This small booklet describes Asian-origin bamboos for garden use, following an incredible phase of importation of bamboos into the United States from China, Japan, and Korea. The intent of the importations at the time was to investigate wood substitutes as a source for paper pulp, as well as other domestic utilization opportunities. Despite intensive research and positive results, the industrial-ization of bamboo has not yet progressed significantly in the U.S. Modern technologies and "green" investment will eventually lead to the acceptance of bamboo as a crop with sustainable potentials.

Also, around 1961, Argentine grass specialist Professor Lorenzo R. Parodi defined the subfamily Bambusoideae as he researched representatives from his country, placing all the woody bamboos under the tribe Bambuseae. At the same time, a vital publication appeared out of Japan; the research of Koichiro Ueda, an authority on bamboo study and Professor of Kyoto University was published in English, *Studies on the Physiology of Bamboo*.⁵ This book revealed unknown aspects of bamboo physiology, particularly

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about how bamboo grows, its flowering, and applied studies on cultivation and utilization. It stands today a very significant contribution to the understanding of bamboo botanically and horticulturally.

Otherwise, bamboo studies outside of Asia continued quietly. Then in 1966, an extremely valuable book appeared, written about bamboo by an American, who met bamboo as a biology schoolteacher in China where he also served as an Agricultural Explorer for the USDA; *Bamboos - a Fresh Perspective*, by Floyd Alonzo McClure. McClure was surrounded by bamboo in China, and as early as 1934 had worked on the morphology of a flower spikelet (of a bamboo called *Schizostachyum*). Later in the United States, he worked at the Smithsonian Institution where his plans were to revise all the bamboo genera for *Die Natürlichen Pflanzenfamilien* (the monumental German treatise, The Natural Plant Families). Unfortunately, at the time of his death in 1971, he had completed most of the manuscript for just the New World Bamboos. McClure dedicated his entire life studying every aspect - botanically and horticulturally - of bamboo and his book, *Bamboos - A Fresh Perspective*, was a very comprehensive treatise.⁶ It was reprinted in 1993, and still today is widely regarded as a bamboo 'bible' to those needing the ultimate reference book.

The first British book devoted entirely to bamboo since Freeman Mitford's in 1896 appeared over 70 years later in 1968, *Bamboos*, by Alexander H. Lawson. It was the first book of its kind to deal purely with temperate (cold hardy) bamboo; the cultivation and propagation of bamboos and their potentials in garden settings are all fully discussed. It was exactly the book that so many gardeners and plant enthusiasts needed to dispel the myths and gain confidence in using these remarkable plants effectively in the modern landscape.

From highly respected horticultural institutions in England such as Kew, Wakehurst, Wisley and beyond, to small plots and private gardens, bamboo was finding a niche as a plant that had unique qualities and enduring attributes. Gardeners who were keen to have an exotic collection of newly introduced plants welcomed bamboo as they did many other foreign imports. The great valley gardens of Cornwall are a testament of this phenomenon, dating back to the turn of the 20th century. In harsher climates, bamboo created an exotic atmosphere, growing rapidly and remaining green despite winter cold. Many types exhibit colorful stems and brightly variegated leaves, a perfect foil for traditionally formal evergreens. Selecting the right species brought immediate privacy screens and hedges. Low-growing groundcovers spread down slopes difficult to maintain with traditional turf grasses and prevented erosion.

In 1855, in the region of Cevennes, France, a man named Eugene Mazel set out to realize his dream: to create a bamboo plantation, a 'bambouseraie'. The natural conditions of the site and the local microclimate proved very favorable for his plans, and after constructing extensive water works to bring the needed irrigation from the river Gardon, Mazel developed this paradise. Consequently, he also spent a lot of money, and in 1902, Gaston Negre purchased the property of Prafrance which contained the La Bambouseraie, and devoted all his energy into restoring and enriching Mazel's collections. Today the botanical park is a thriving collection of plants, fabulous gardens, extensive bamboo groves (some over 25 meters tall), a bamboo labyrinth, and retail shops. Visitors are amazed and educated, and the park has become a mecca for people seeking the splendor of bamboo. Mazel's dream came true.⁷

Documentation of the various kinds of bamboos that could tolerate cold climates throughout countries like Germany, Denmark, the Netherlands, and the northeastern parts of the United States led to the continued curiosity of plant enthusiasts. The 'tropical' appeal of these plants was a welcome extension of the typical plant palette found in most gardens. In 1979, the American Bamboo Society was formed in the United States⁸, bringing together bamboo-philes for networking and educational extension. Plant sales and auctions sponsored by the ABS also further extended the cultivation and propagation of rarely seen bamboos, and publication of an informational newsletter and scientific journal continued spreading the knowledge gleaned by still a small group of aficionados. A titillating book was published in 1984 by self-proclaimed 'bambugero' David Farrelly, which led to yet another new surge in bamboo interest, *The Book of Bamboo*. This book still elicits great reactions from beginners and experts alike, as it full of idealism and intrigue entwined with a plethora of bamboo facts. Further south, pioneers such as Oscar Hidalgo López in Colombia was bringing the magic of the elite species *Guadua* into focus, and documented his research in a later book, *Bamboo - The Gift of the Gods*, published in 2003.

Early European pioneers in the field of mechanical engineering included Walter Liese of the University of Hamburg and Jules Janssen of the Technical University of Eindhoven, The Netherlands. In 1988, Dr. Janssen published *Building with Bamboo - A Handbook*, which brought together the practical experiences of engineers in the field and of research programs testing bamboo. It became essential reading for anyone considering using bamboo as a building material.

Thanks to innovative European nursery entrepreneurs who marketed bamboo plants in the 1980's to an eager public, various groups formed on the continent of Europe leading to the birth of the European Bamboo Society. Belgium, the Netherlands, Germany, Switzerland, Italy, France, and the United Kingdom all formed individually managed membership groups focused on the cultivation of bamboo. Regional meetings, garden tours and plant sales are part of the camaraderie that keeps these bamboo enthusiasts together. Recently, the Iberian Bamboo Association AsIB formed, joining Portugal and Spain in the effort to promote bamboo.

The early 1990's saw the rise of international coordination between these interests, leading to the formation of the World Bamboo Organization.⁹ Formally set-up as a United States non-governmental trade association, the mission of the WBO is simple: to

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encourage and promote the sustainable cultivation and utilization of bamboo globally for the sake of the environment and economy. Every three years, international conferences are organized to provide a platform for the World Bamboo Congress to expand the networking and collaboration of bamboo researchers, producers, institutions, artisans, architects, developers, etc. Hands-on workshops are becoming annual events.

Also, in the late 1980's, a group of bamboo and rattan researchers funded by various groups, including the Asia Regional Office of the International Development Research Centre of Canada (IDRC), collaborated extensively on various issues and jointly held workshops. In 1993, the International Network of Bamboo and Rattan was formed, with its office in Delhi, India, and funded by the IDRC. Support also was received by the International Fund for Agricultural Development (IFAD).

The new network had a mandate to address two principal issues. One was the crucial role of bamboo and rattan as non-wood forestry products (NWFPs) in the socio-economic well-being of the predominantly rural population of developing countries. The other was the potential of bamboo and rattan for conserving tropical forests and for curtailing the rapid decline of forest genetic resources by offering alternative solutions to wood-based products.

INBAR was founded with a holistic approach to research, focusing on all parts of the bamboo and rattan sectors from production to utilization, and linking natural and physical sciences to socioeconomics to maximize the relevance and impact of its work. In addition, INBAR actively undertook to promote the utilization of its research results through information, training, and technology transfer activities. It initiated the production of a series of technical publications, and the network's newsletter was redesigned and expanded to disseminate information on INBAR activities and to provide network members a forum for the exchange of ideas.¹⁰

In 1997, INBAR became an independent international organization and moved its primary office to Beijing, China. Dr. Cherla Sastry became its first Director General. The International Bamboo and Rattan Organization (INBAR) is a now a multilateral development organization that promotes environmentally sustainable development using bamboo and rattan.

Together, these two international organizations, plus many allied groups, work hard to promote the subject of sustainable bamboo development. As the world is challenged by the effects of climate change, and human populations demand more resources, the concept of bamboo industrialization is being realized. Both organizations work to dispel myths and misconceptions, and support research outlining such topics as the environmental impact of industrial bamboo products and their production processes compared to traditional construction materials, the process of carbon sequestration in bamboo forests and plantations, the potential of bamboo as an alternative to fossil fuels, as a new fiber source for myriad applications, as a nutrient-rich food supplement, as an opportunity for economic development in rural areas and as a "power plant" for landscape restoration.

In 2009, at the 8th World Bamboo Congress in Bangkok, Thailand, the Bamboo Pioneer Award was initiated.¹¹ This award recognizes the great achievements of contemporaries who have dedicated their lives in the pursuit of bamboo knowledge and progress. We know that living creatures all around the world depend on bamboo for their survival. We also know that for centuries, human cultures have cultivated and utilized bamboo for their daily needs and through innovation improved their livelihoods and economies. In an awesome myriad of discoveries and innovations, these early pioneers have led the way to a deeper appreciation and respect for the traditional cultural utilization and reverence of bamboo, its modern-day potentials, and its future realizations. The first [Bamboo Pioneer Award](#) was given to Dr. Ueda Koichiro of Japan, who is also the first to publish data regarding carbon cycling in bamboo in 1960. <see reference 5>. Twenty-six people have received this Award in the past 13 years. Their names should be familiar to you. <see cover page>

The cultivation of bamboos for utilization is in a new era. It is hard to fathom, but agricultural lands around the world are under-used and inefficient. Degraded lands need restoration. Demand for bio-based solutions to help mitigate climate change and dwindling natural resources has led to the opportunity that bamboo again be re-discovered. Southern Europe and the southeastern United States have abandoned farmland in climate zones suitable for growing bamboo. Regions throughout Africa, Central and South America have much suitable land for cultivation, degraded lands due to mining and other industrial waste, and rural communities need employment. South-South cooperation also promises expanding bamboo interest. As the public embraces bamboo as a substitute to plastic, as an alternative to tropical hardwoods and ancient boreal forests, as a sustainable fiber for clothing and paper, as an alternative to fossil fuel, the world will need to plant more bamboo. As this article began, so shall it end: *For ages human societies have searched for plants outside their communities for solutions to everyday needs and for their well-being. Let us continue to be pioneers, and plant bamboo!*

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