

The Pioneering Works of Carl Linnaeus (1707–1778)

Sathish Kumar C.

Jawaharlal Nehru Tropical Botanic Garden & Research Institute, Pacha Palode,
Thiruvananthapuram District, Kerala – 695 562, India

Res.: Sonerila, C-21, Devi Nagar, Kundamonbhagam, Peyad P.O., Thiruvananthapuram District, Kerala – 695 573, India

*E-mail: chandrothsathish@gmail.com

Abstract: The multi-faceted contributions of Linnaeus are briefly reviewed. From the early times as a student when his original ideas on plants and their sexuality blossomed to artificially classify for ease to identify, understand and to refine, as interactions with great men of science of the day continued, crystallizing the concepts and putting across for wide appreciation, Linnaeus impeccably edited his thoughts as nobody could make it. His concepts on species, genera and classification of the world flora were uniquely original which helped the later generations to work on and perfect it.

Keywords: Species, genera, classification, binomial nomenclature.

Introduction

Carl Linnaeus (1707–1778) is famously known for his pioneering work on species (1753) which became the beginning of binomial nomenclature on a strong footing. It automatically brought to light the concept of genus as well. And his underlying sexual classification, though pitifully artificial and of thin build up received much mock and abuse than praise and accolades, but the otherwise genuine attempt paved the way for more experiments at new classifications with diverse attributes down the following centuries. And in essence the concepts were loosely followed since then but later on improved and perfected.

This is essentially the story of Linnaeus and how he arrived at a stage of visualizing the world of plants through his methodical approach, ardent studies

and acclaimed synthesis. Obviously, this is also a critique of the present author's understanding of various contributions of Linnaeus and how it stood the test of time for so long a period. And still continues to inspire students.

A brief biographical sketch

Linnaeus was born on 23rd May 1707 to Assistant parish priest Nils Linnaeus (1674–1748) and Christina Brodersonia (1688–1733) as their first child in Råshult, Southern part of Sweden. When promoted as parish priest the family moved to Stenbrohult in 1709. As was the custom Linnaeus had his early education at home and then went to the gymnasium at Växjö where he studied for nine years. This enabled him the admission to Lund University in 1727. It is here that he met his first well-wisher and teacher in natural science and medicine, Dr Kilian Stobaeus (1690–1742), who gave him private lessons and a place to stay. This was a great blessing to a financially poor student like Linnaeus who hailed from an ordinary family. The greatest attraction was that the knowledge hungry Linnaeus could use the rich library facility at Stobaeus. In 1728 he moved to Uppsala University to pursue his higher studies. Sadly, this was also at that time at its lowest ebb with very few teachers and facilities. Olof Rudbeck (1630–1702) the Elder who created the finest botanical garden in the whole of Europe at Uppsala died and his son Rudbeck the Younger (1660–1740) took charge. He noted the botanical knowledge of Linnaeus and engaged him as a private tutor to his children. This has sustained Linnaeus for some time.

Received: 12.04.2026; *Revised & Accepted:* 24.06.2026

Published Online: 30.06.2026

Visit to Lapland

In the spring of 1732, just before his 25th birthday, the Royal Society of Sciences in Uppsala sponsored Linnaeus to undertake a research trip to Lapland, the northern part of Sweden in the arctic circle as it was then a terra incognita. It was inhabited by a sparse population of the Sami people, who lived as herders of reindeer. Over the next five months he traveled some 3,000 miles (4,800 kilometers), by horseback and on foot and boat, making collections and taking copious notes as he went by. The report on Sami people was both very exhaustive and authoritative and it highlighted a new perspective on their life and culture, quite unheard of in the past. It was much appreciated by the Uppsala Royal Society of Sciences. True to his innate caliber as a botanist Linnaeus later published (1737) his *Flora Lapponica*.

Dalarna

The following two summers he visited the province of Dalarna writing about its flora and a diary. During one of those days in Dalarna,



Fig. 1. Carl Linnaeus.

Linnaeus met the Governor in the travel club who listened to the experiences of Linnaeus in Lapland and recommended him to undertake similar expeditions to lesser-known areas so that the knowledge of their resources could be gathered and made use of.

It is also here that Linnaeus met Dr Johan Moraeus (1672–1742), a well-known physician and his daughter Sara Elisabeth Moraea. The first meeting of Linnaeus with Sara Liza turned out to be love at first sight. Though Dr Moraeus had good opinion about Linnaeus he was not much in favour of getting his daughter married to him. Sara suggested him to get a medical degree from the Netherlands and then claim for her. To make things easy she even gifted him with her saved pocket money to work in the Dutch University to get the medical degree. Accordingly, Linnaeus left for the Netherlands in 1735.

In the Netherlands

Before proceeding to the Netherlands Linnaeus had already prepared his doctoral dissertation on malaria for submission to the University of Harderwijk. And hence the formalities were quickly completed. Armed with a newly acquired medical degree and several unpublished manuscripts at hand he started visiting several great names in botany in the Dutch territory. Johann Jakob Dillenius (1687–1747), Herman Boerhaave (1668–1738), George Clifford (1685–1760) and many others. Clifford was a banker who provided Linnaeus with local accommodation and food. Linnaeus in return had put Clifford's garden in order and described the plants in *Hortus Cliffortianus* (1737). Dillenius introduced him to several other botanists of prominence. During the three-year period in the Netherlands Linnaeus published 8 books which catapulted his image as a classic writer of eminence. This included his *Systema Naturae* (1735), *Bibliotheca Botanica* (1736), *Fundamenta Botanica* (1736), *Genera Plantarum* (1737), *Flora Lapponica* (1737), *Critica Botanica* (1737), *Hortus Cliffortianus* (1737) and *Classes Plantarum* (1738) in quick succession. What

else could satisfy the thirsty botanists there. His innovative Sexual System was followed in these works, which was simple and practical and was enough to make an impact in the learned world. True, there were criticisms but as years passed by, the work was much enlarged with new editions incorporating further changes from the original.

He visited London and Oxford in 1736. In London he met a galaxy of botanists like Sir Hans Sloane (1660–1753), Peter Collinson (1694–1768) and Philip Miller (1691–1771). He also visited Chelsea Physic Garden. By August he was back in Holland working on his *Hortus Cliffortianus* with a description of all the plants grown in Hartekamp and those preserved as herbarium in Clifford's collection. In 1738 he visited Paris to meet the de Jussieu brothers. And then he went back home. Married his fiancée Sara-Lisa Moraea who was waiting for him in the past three years.

After marriage Linnaeus started his medical profession in Stockholm. His son, also called Carl

was born in January 1741. Accepting the Medical Professorship Linnaeus and family moved to Uppsala in October 1741. Later he organized a small party to make natural history observations in Öland and Gotland, two small islands in the southern Sweden. The results were published in 1745 from Stockholm and Uppsala. Also published was his *Flora Suecica*. This was followed by a *Fauna Suecica* in 1746.

The Dutch botanist Paul Hermann's (1646–1695) Sri Lankan specimens were referred to Linnaeus for naming. It was for the first time that he was seeing tropical plants and hence was very much excited to study. His detailed study resulted in the publication *Flora Zeylanica* in 1747 from Stockholm. In this work Linnaeus didn't use binomials but the plants were grouped under his generic names. But full reference to Ceylon species were made in the *Species Plantarum* thus making *Flora Zeylanica* an important milestone. And in the following year a later version of *Hortus Upsaliensis* was published (1748).

In 1749 he undertook what could be called his last expedition, to Skane, the southern-most county of Sweden and a detailed travelogue was the result. With this trip Linnaeus concluded his field journeys but instructed his students to continue to undertake field expeditions to different countries to bring in new plants for study and naming. At about the same time his *Philosophia Botanica* was also published (1751).

The fame of Linnaeus by now reached the Drottningholm palace where he was invited by the Queen Lovisa Ulrika to describe her zoological collections. Furthermore, he catalogued King Adolf Fredrik's collection as well in 1751 in which he used binomial nomenclature.

Species Plantarum (1753)

All the plants then known in the world were described and arranged according to his Sexual Classification into 24 classes, genera and species. This book published in two volumes became the

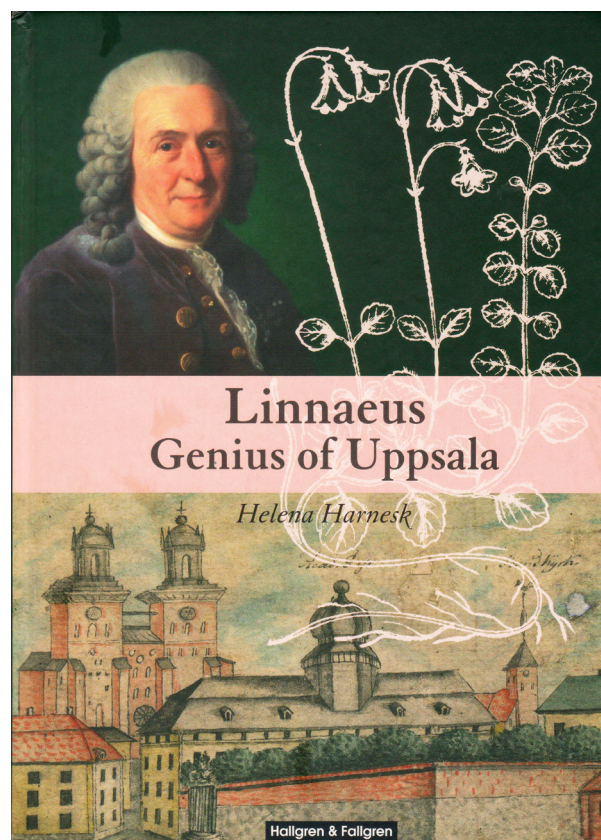


Fig. 2. Helena Harnesk's book about Linnaeus.

starting point of modern botanical nomenclature. This was a landmark contribution following his classification diagnosing 5,900 species arranged in his genera with key to species. Though used very simple keys to distinguish between species, the binomial nomenclature consistently used was unique and followed by later botanists down centuries. Whenever a species description does not fit into his frame work it means that you are dealing with a new species. Hence this work was much sought after world-wide with people trying to fix the identity of plants of the respective regions. It started with Class I Monandria and Monogynia with *Canna angustifolia* L. (synonym of *C. glauca* L.) in the first volume and concluded by *Caryota urens* L. of Palmae bipennatifoliae in the second volume. Its appendix carried 25 more genera and 44 species.

Systema Naturae (1735, 1758)

The first edition of *Systema Naturae* (1735) was his classification of animals - Quadrupedia, Aves,

Amphibia, Pisces, Insecta and Vermes. In the tenth edition (1758) the classification was more exhaustive and elaborate with more characters added to each category. Undoubtedly, these two remarkable works which gave binomial names to all the organisms then known stand out as the two giant pillars of the talent and hard work of Linnaeus unsurpassed by anybody else.

Linnaeus was ennobled in 1761 (ante dated 1757) and took the name as Von Linne. He purchased a few estates near Hammerby where he established a museum. In the meantime, King Adolf Fredrik, who extended every help to Linnaeus, died. He was succeeded by Gustaf III who extended the same support as his father. By 1772 Linnaeus's term as rector in the University expired and he got free time to work on his *Systema Vegetabilium*. He suffered a major stroke in 1774 which partially paralyzed him debilitating his health seriously. Succumbing to a second stroke in 1777 Linnaeus gradually moved to his final day breathing his last on 10th January 1778. He was seventy at the time of his death.

He was survived by his wife Sara, son Carl, daughters Elizabeth Christina, Lovisa and Sophia.

Undoubtedly, Linnaeus's greatest contribution was binomial nomenclature which both botanists and zoologists and historians of natural history avidly follow. The crisp style and brevity of description of novelties was another hallmark being followed even today. Though the number of species was very less in his home country and the Europe put together, he studied them, also studying the classical works of Dillenius's *Hortus elthamnensis* (1732) and specimens gathered from different sources. He further requested his students, later called 'apostles' to bring back specimens from countries they were visiting so that he could study and enrich his knowledge for a better classification. For a person who originally believed the world flora would be no more than 10,000 species, when more and more specimens arrived from different parts of the world,

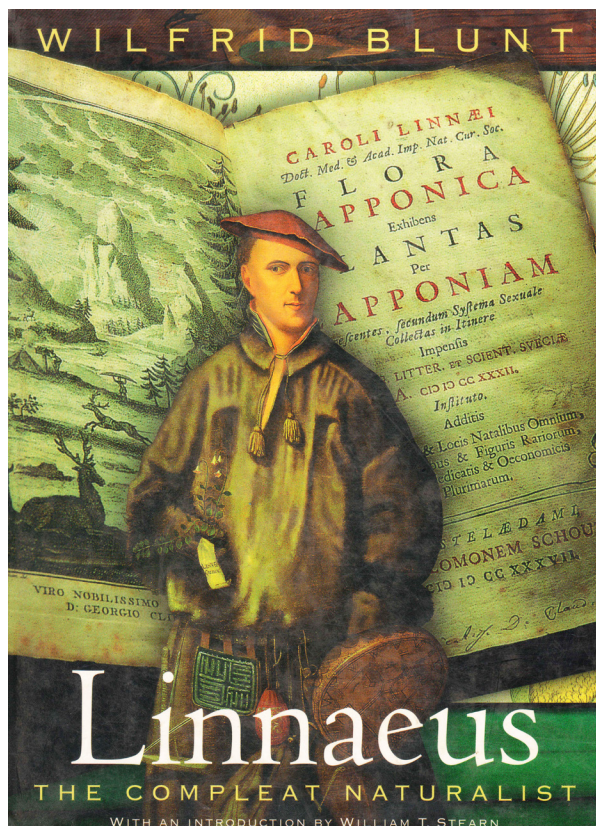


Fig. 3. Cover of Wilfrid Blunt's book about Linnaeus.

Linnaeus was very much concerned and confused. And fitting them into his original framework of classification, that was based solely on a little over 5000 species, was both cumbersome and difficult. More species were added by later botanists like Willdenow (1797–1810) who respectfully used the title *Species Plantarum* to add on novelties.

Linnaeus didn't bother to go beyond species and genera, though similar looking ones were mostly grouped together. His hectic life was nearing completion leaving the rest to the later botanists. The French botanist A.L. de Jussieu (1748–1836) who was following Linnaeus in letter and spirit proposed family names for the first time when he grouped similar looking and related genera together in his *Genera Plantarum* (1789). Over 100 families of Jussieu are still being used. More new families were recognized as more species and genera were added and new characteristics were identified (currently over 400 families of flowering plants have been recognized).

A namesake genus

When his rules and regulations for naming plants ('the Linnaean canons') were framed Linnaeus did not mention about naming a genus or species after himself. But when Gronovius suggested him to name the European twin flower after himself he was left with no other choice but to accept it. Primarily because he loved the plant very much. Thus, the generic name *Linnaea* Gronov. ex L. was described with the species *L. borealis* L. He wrote

about it in *Critica Botanica*: 'is a plant in Lapland, low, insignificant, forgotten, flowering for a short time; it is named after Linnaeus who resembles it (1737:80)'.

Acknowledgements

I am very grateful to Ms. Ingrid Kleftback (Sweden) for providing me with all Linnaeus literature from Uppsala University where Linnaeus worked originally. My good friend Dr A. K. Pradeep (Calicut) encouraged me to write about Linnaeus and other great botanists.

For further readings

- ANDERMAN T. 2007. *Herr Archiater of Hammarby - Carl von Linne in the parish of Danmark*. Dankmarks Hembygdsforening.
- BORG I. 2005. *I Naturens Riken. Linnes liv och verk*. Opal, Sweden.
- BLUNT W. 2001. *Linnaeus The Compleat Naturalist. A Life of Linnaeus*. Frances Lincoln Ltd., London.
- BROBERG G. 1978. *Carl Linnaeus 1707–1778*. Uppsala University, Sweden.
- CHEVALIERE C. 2007. *Fran stubbotan rot till anseligt trad*. Uppsala University, Sweden.
- FRANGSMYR T. 1994. *Linnaeus The Man and His Work*. Science History Publications, USA.
- HARNESK H. 2007. *Linnaeus. Genuis of Uppsala*. Hallgren & Fallgren, Uppsala.
- TARA P. 2003. *Sex, Botany & Empire. The story of Carl Linnaeus and Joseph Banks*. Icon Books, UK.
- THE EXPLORER'S HANDBOOK 1999. *Carl Linnaeus in Skane*. IK Foundation & Company, Sweden.