Carl Linnaeus’s paternal grandfather, like most Swedish peasants and farmers of his times, had no surname and was known, in accordance with the old Scandinavian name system, as Ingemar Bengtsson, being the son of Bengt Ingemarsson. When his son, Carl’s father, Nils Ingemarsson (1674-1733), went to the university of Lund, he had to provide himself with a surname for registration purposes. He invented the name Linnaeus in allusion to a large and ancient tree of the small leaved linden (Tilia cordata Miller, T. Europaea L. in part), known in the Småland dialect as a “linn”, which grew on the family property known in the seventeenth century as Linnegard. Other branches of the family took the names Lindelius and Tiliander from the same famous tree. Linnaeus himself referred to this when he described Tilia in 1745 as being vastissima in pago Stegaryd Sunnerboae Smolandiae unde Tiliandri et Linnaei dicti. The name Linnaeus was thus of Latin form from the beginning. Linnaeus, having been ennobled in 1761, first took the name of Carl von Linné in 1762, by which time he had published all of his most important works. Nils Ingemarsson Linnaeus, like his relatives Carl Tiliander and
Sven Tiliander, became a clergyman. In March 1706 he married Christina the daughter of another clergyman, Samuel Brodersonius, rector of Stenbrohult, in Småland, which is situated by an inlet of Lake Mócklen. Their son Carl was born on 23 May (13 May old style) 1707 at Råshult nearby. Samuel Brodersonius died in December 1707 and in June 1708 his son-in-law Nils Linnaeus moved with his family into the rectory at Stenbrohult. Here young Linnaeus grew up amid a profusion of flowers, those native and wild in the marshland and meadows near the lake, those exotic and cultivated in his father’s well-stocked rectory garden, the whole parish seeming “as if adorned by Flora herself”. Nils Linnaeus grew more kinds of plants in his garden than anyone else in Småland and his son wrote in 1745 that “this garden inflamed my mind from infancy onwards with an unquenchable love of plants”. In another way it also decisively influenced Carl Linnaeus’s life-work. As a little boy he loved to work with his father in the garden and constantly asked him the names of plants and as frequently forgot them until his exasperated father told him that he would never be given any more names unless he remembered them. After that, according to Linnaeus himself, the heart and soul of the five-year-old boy were set on remembering the names. Thus began his long preoccupation with the naming of organisms. It may well be that the rules in his *Critica botanica* for making generic names short, unambiguous, euphonious and memorable sprang ultimately from his difficulties with them as a child.

In 1714 aged seven he was sent for schooling at Växjö, where he remained until 1727. He did not prove an apt and brilliant pupil in a school intended mostly for would-be clergymen and state officials. According to a contemporary document summarised by Telemak Fredbärj in 1973, lessons at Växjö began at 6 a.m. after prayers and hymn-singing and ended at 5 p.m.; of the lessons each week, seventeen were devoted to Latin, fourteen to theology and ethics, four to Greek and nine to mathematics, physics and logic together. Linnaeus found this dry fare little to his taste but it gave him a good grounding in Latin, without which he could never have reached the learned world of Europe in later years. His parents hoped he would become a clergyman; his teachers thought otherwise; they said he was most deficient in the subjects such as Greek, theology and eloquence most needed for a priest and he himself had no inclination that way. Fortunately indeed for Linnaeus and for posterity a distinguished local doctor Johan Stensson Rothman (1684-1762), while agreeing that Linnaeus could never become a priest, assured his parents that he would become a famous doctor and gave him personal instruction in botany and the principles of medicine. Rothman introduced him moreover to the sexuality of plants as expounded in Sébastien Vaillant’s *Sermo de structura florum* (1717), which had a dramatic effect on his adolescent imagination by revealing that sex comparable to that of human beings existed in flowers. Linnaeus took the comparison a long way, to the extent indeed of seeing the common marigold (*Calendula officinalis*) as a plant practising “necessary polygamy” with “the married females barren, the concubines fertile”; in other words, the ray florets of the flower head produced seeds but the disc florets did not. It led him to study flowers intimately, examining hundreds to discover how they managed their sexual affairs and procreation. He admitted in 1738 that “their singular structure and extraordinary function attracted my mind...
to enquire what Nature had hidden in them. They commended themselves by the duty they perform since the propagation of plants rests entirely on them alone”. These observations, transformed into human terms, formed the basis of his so-called “Sexual System” of classifying plants into major groups based on the numbers of their genital organs, of their stamens and stigmas.

Lund 1727-1728

As a country parson in a Småland parish Nils Linnaeus was a poor man and he and his wife feared that as a doctor their son might be just as poor despite the length and cost of a medical education. Carl Linnaeus was, however, determined on a medical career and in August 1727 he entered the University of Lund. The two Swedish universities, Uppsala and Lund, were then at their lowest ebb, with a few ageing and discouraged professors and little money for the maintenance of such studies as anatomy, botany and chemistry. Some private tuition was available but it usually cost too much for very poor students like Linnaeus. It is a characteristic of his life that at every period of crisis Linnaeus’s impressive ability, industry and enthusiasm, despite the unfortunate first impression given by a certain brashness and egoism, brought influential people to his aid. He could never repay them with money but later he gratefully enshrined their names in the literature of botany: Rothmannia, Stobaea, Celsia, Gronovia, Lalvsonia, Cliffortia, Burmannia and Boerhavia commemorate these friends and benefactors. In Lund the eminent physician and naturalist Dr Kilian Stobaeus (1690-1742) befriended him, let him live and eat in his house and attend his lectures without payment; he lent him books and showed him his collection of plants dried and glued to paper, something Linnaeus had never seen before. He soon began to make a similar herbarium of his own. Thus began the great Linnaean herbarium of such outstanding international importance. To help name his plants gathered on excursions he bought M. D. Johren’s Vade mecum botanicum seu hodegus botanicus (1710), a guide to Joseph Pitton de Tournefort’s system of classification, and thus began the formation of his rich natural history library now belonging to the Linnaean Society. Linnaeus retained a lifelong gratitude to Stobaeus who “loved me, not as a pupil, but as if I were his son”. Unfortunately, in May 1728 Linnaeus became ill and after recovery returned to his family at Stenbrohult. He did not set foot in Lund again until twenty years later. Nevertheless Linnaeus’s ten months in Lund under the affectionate and stimulating guidance of Stobaeus must be counted as possibly the most formative period in his career as a naturalist.

Uppsala 1728-1731

During the summer of 1728 Rothman convinced Linnaeus and his parents that he should continue his medical studies not in Lund but in Uppsala, where some twenty years ago Rothman himself had studied. Unfortunately, Uppsala had also declined. The two revered professors in medicine, Olof Rudbeck the Younger (1660-1740) and Lars Roberg (1664-1742), were aged and could not obtain funds for the proper maintenance of the
university hospital; there was no longer any clinical teaching and the university botanic garden was poorly stocked. During the whole of his student years the future professor of botany never heard a lecture on botany! His limited money ran out and he must have thought how much better he had been in Lund with kind-hearted Stobaeus. Luckily another learned man Olof Celsius the Elder (1670-1756), a theologian and naturalist, noticed the hungry-looking student in the botanic garden and, presumably surprised to find a student studying, enquired what he was doing, then invited him home and gave him a free room and meals. As a New Year’s gift Linnaeus presented Celsius with a manuscript dissertation, *Praeludia sponsaliorum plantarum*, on the marriage of plants and their sexual analogies with animals. It came to Rudbeck’s attention. He needed someone to give botanical instruction on the plants of the botanic garden to students at the end of the spring term and the author of this dissertation seemed the very man for the duty, even though still a student. Linnaeus, ever confident of his own abilities, assented and he lectured very successfully from May to July. Thus began his long fruitful career as a university teacher, from which no less than twenty-three of his own students became themselves professors. In 1695 Rudbeck had travelled as a young man in Lapland and had made extensive botanical and zoological specimens and observations, together with drawings, in that vast then virtually unknown wilderness. Most of these perished in the terrible fire of 1702 which raged across Uppsala and destroyed three-quarters of its buildings. Thereafter he lost heart and turned his attention largely to philology and raising a family, which numbered 24 children, probably an academic record by Linnaeus’s time in 1730. He invited Linnaeus to live in his house as tutor to his four youngest sons, with opportunities to use his rich library. Meanwhile Linnaeus, dissatisfied with Tournefort’s widely used classification of plants, had begun to make one of his own based on the numbers of stamens and stigmas and to describe the genera methodically. He used his time diligently, beginning in Rudbeck’s house the works later published as *Bibliotheca botanica* (1736), *Critica botanica* (1737), *Genera plantarum* (1737), *Classes plantarum* (1738), and also studying birds and insects. Thus by the age of 24 Linnaeus had laid the foundations for all his later work.

Friendship with Pehr Arctedi 1729-1735

When Linnaeus arrived in Uppsala in 1728 he learned about another medical student interested in natural history, Pehr Arctaeus, who had begun his studies there four years earlier but was absent because of his father’s illness. His family name had apparently been coined by his grandfather, a clergyman like his father, when dwelling in northern Sweden, but grandson Pehr altered it to the Italian-sounding Arctedi when a student at Uppsala. He was born in 1705. Living near the sea at Nordmaling, Västerbotten, on an inlet of the Gulf of Bothnia, he became especially interested in fish, but his interests were wide and embraced alchemy as well as natural history. On his return to Uppsala in 1729 he and Linnaeus became close friends. Their talents and interests complemented one another. Together they worked out a plan for studying and documenting the natural world between them, Arctedi to deal with fishes, reptiles, amphibians, the Umbelliferae among plants, Linnaeus
with birds, insects and the plant world in general. Artedi possessed a very thorough, methodical, philosophical and scholarly mind and was well versed in modern languages and the classics. There would seem little doubt that the methods for the diagnosis, description and naming of organisms (apart from the binomial system of nomenclature) which Linnaeus used were developed by these two young men in cooperation. Unfortunately, Artedi was drowned on 28 September 1735 by falling into an unlit canal at night in Amsterdam; science lost one who might have proved the greatest systematic zoologist of the eighteenth century. Henceforth the task of revealing the works of the Creator in an orderly manner was to be Linnaeus’s alone. Artedi had left in manuscript a very detailed monographic work on fish and, edited by Linnaeus and entitled *Ichthyologia sive opera omnia de piscibus*, which was published in Leiden in 1738.

**Lapland journey 1732**

As they sat by the fire in 1731, during the long winter nights, Rudbeck now seventy years old talked to Linnaeus about Lapland, its wildness and strangeness, the ways of the Lapps, its birds and its flowers, and filled his young listener with eagerness to explore its natural history. The problem was to raise the money for so long a journey. Linnaeus, anticipating the methods of later student fund-raisers, drew up a memorandum emphasising both the desirability of a naturalist visiting Lapland and the attributes requisite in such a person, from which it would appear that the most suitable one for the task would be no other than Linnaeus himself. He accordingly offered his services and asked the Royal Society of Sciences at Uppsala (Regia Societas Scientiarum) for 600 copper dalers. This was certainly a modest sum to cover a journey of about 3,000 English miles (5,000 km) lasting from 12 May to 10 September 1732. Even Linnaeus, thrifty Smålander though he was, found in fact that it cost more. He travelled along the coast of the Gulf of Bothnia to Umeå, then went inland by way of Lycksele to Lycksmyren and then back to Umeå, then along the coast northward to Luleå, then across Norrbotten by way of Jokkmokk and Kvickkjojk to Rörstad on the Norwegian coast and back again to Luleå. From Torneå he then went northward along what is now the Finnish frontier to Kengis and Vihangi and then back to Torneå. The rest of his journey was southward along the Finnish coast to Turku (Åbo) and by sea back to Sweden. Linnaeus kept a journal of his Lapland journey but never published it. An English translation entitled *Lachesis Lapponica or a tour in Lapland* was published in 1811, the Swedish original not until 1888 and 1913. This abounds with interesting observations. The journey was the most adventurous that Linnaeus ever made; it has been assessed by his fellow-countrymen as the most fruitful single scientific expedition ever made in Sweden both for its immediate botanical results and its influence on Linnaeus’s later career. It led to the publication in 1737 of his *Flora Lapponica* which is of prime importance for the nomenclature of Arctic-Alpine species; Linnaeus’s Lapland specimens, on which this was based, are in Paris.

Linnaeus’s subsequent career falls into five periods, the main events of which may be summarised...
chronologically as follows:

**Further student years at Uppsala 1733-1735**

1733  Linnaeus lectured on mineralogy at Uppsala; death of Christina Brodersonia (1688-1733), Linnaeus’s mother.

1734  Linnaeus lectured on dietetics at Uppsala; travelled through Dalarna (Dalecarlia); at Christmas met Sara Elisabet (Sara Lisa) Moraea (1716-1806), daughter of town physician of Falun.

1735  Linnaeus engaged on 23 January 1735 to Sara Lisa; left Sweden in April 1735 in order to obtain a doctor’s degree at the accommodating but now extinct Dutch university of Harderwijk and to get his works published.

**Years abroad, mostly in Holland 1735-1738**

1735  Linnaeus travelled through north Germany and Denmark to Holland; awarded degree of doctor of medicine at Harderwijk; befriended by Johan Frederik Gronovius, Herman Boerhaave and Johannes Burman, in whose house he lived; published *Systema naturae*.

1736  Linnaeus published *Bibliotheca botanica, Fundamenta botanica*; moved to George Clifford’s house at Hartekamp near Haarlem as his resident physician and naturalist; visited England at Clifford’s expense; Pehr Artedi accidentally drowned at Amsterdam, his manuscript on fish bought by Clifford and given to Linnaeus.

1737  Linnaeus published *Genera plantarum, Flora Lapponica, Critica botanica*; completed manuscript of *Hortus Cliffortianus* listing the plants of Clifford’s garden with detailed synonymy, the best illustrated and one of the most important of Linnaeus’s publications; edited Artedi’s material.

1738  *Hortus Cliffortianus* and Artedi’s *Ichthyologia* published; Linnaeus visited Paris; returned to Sweden.

**Medical practice 1738-1741**

1738  In September 1738, aged 31, set up in practice as a physician in Stockholm; befriended by the politician Count Carl Gustaf Tessin (1695-1770).

1739  Linnaeus made first President of Royal Swedish Academy of Sciences, of which he was a founder member; appointed physician to the Admiralty; on 26 June 1739 married Sara Lisa;
Tessin made leader of the Hats political party, Marshal of Swedish Diet.

1740 Linnaeus published second edition of *Systema naturae*.

1741 Carl Linnaeus the Younger, born at Falun on 20 January. Linnaeus appointed professor of medicine and botany at the University of Uppsala; travelled through the Baltic islands of Öland and Gotland to survey their natural history, economic products, etc.

**Professorship at Uppsala 1741-1772**

1741 On 25 October Linnaeus, aged 34, gave inaugural address at Uppsala on the necessity of travelling within one’s own country; death of Queen Ulrika Eleonora.

1742 Linnaeus restored Uppsala Botanic Garden.

1743 Elisabet Cristina (1743-1782), Linnaeus’s eldest daughter, born; Adolf Fredrik (1710-1771) of Holstein-Gottorp elected as successor to Swedish throne; part of Finland ceded by Sweden to Russia.

1744 Marriage of Adolf Fredrik to Lovisa Ulrika (1720-1782).

1745 Linnaeus published *Flora Suecica, Ölandska och Gothländska resa*, an interesting account of his 1741 journey, with first use of binomial nomenclature for species in the index.

1746 Linnaeus travelled through Västergötland; published *Fauna Suecica*; in September 1746, aged 39, hard at work on manuscript of *Species plantarum*.

1747 Linnaeus honoured with title of Archiater (chief physician); published *Flora Zeylanica*, an important work on the plants of Ceylon, and *Wästgöta resa*, dealing with his Västergötland journey of 1746.

1748 Linnaeus published *Hortus Upsaliensis*; reached *Tetrodynamia* in manuscript of *Species plantarum*, then compelled by other activities and the strain of overwork to put it aside for a year.


1750 Linnaeus dictated *Philosophia botanica* to his student Pehr Löfling when bed-ridden and too unwell to write; resumed work on *Species plantarum* but did little.

1751 Linnaeus published *Philosophia botanica*; Pehr Kalm returned from America with exciting specimens; Sara Christina (1751-1835), Linnaeus’s fourth daughter, born; in June 1751 again
resumed work on *Species plantarum*; death of Fredrik I, accession of Adolf Fredrik and Lovisa Ulrika as King and Queen of Sweden.

1752 Manuscript of *Species plantarum* completed; Pehr Osbeck returned from China.

1753 Linnaeus, aged 46, published *Species plantarum*, starting point of modern botanical nomenclature.

1754 Linnaeus published the fifth edition of *Genera plantarum*.

1756 Outbreak of Seven Years” War.

1758 Linnaeus made Knight of the Polar Star; published the first volume of the tenth edition of *Systema naturae*, the starting point of modern zoological nomenclature; Löfling’s *Iter Hispanicum*; purchased Hammarby.


1761 Linnaeus ennobled, aged 54.

1762 Linnaeus published the first volume of the second edition of *Species plantarum*; took name of Carl von Linné, built house on his personal estate at Hammarby.

1763 Linnaeus published the second volume of the second edition of *Species plantarum*; excused professorial duties on grounds of ill-health; Carl von Linné the Younger, aged 22, appointed in his place.

1764 Linnaeus published the sixth edition of *Genera plantarum*; suffered from violent attack of pleurisy; celebrated silver wedding.

1766 Major fire in Uppsala; Linnaean collections evacuated to a barn.

1767 Linnaeus published *Mantissa plantarum* as an appendix to the second volume of the twelfth edition of *Systema naturae*.

1768 Linnaeus began to build a museum at Hammarby to house his collections; published the third volume of the twelfth edition of *Systema naturae*.

1769 Hammarby museum completed.

1770 Death of Count Tessin.

1771 Linnaeus published *Mantissa altera plantarum*; death of Adolf Fredrik; accession of Gustaf III.

↑ Decline and death 1772-1778

1772 Linnaeus’s health failed.
1773 Linnaeus weakened by a stroke.
1774 *Systema vegetabilium* published under editorship of J. A. Murray.
1778 Linnaeus, aged 70, died on 10 January 1778; buried in the Cathedral at Uppsala on 22 January.

**Achievements**

Linnaeus is commemorated nowadays primarily as the great biological name giver of the eighteenth century; the abbreviation “L.” for Linnaeus appended to about twelve thousand scientific names of plants and animals indicates the immensity of his achievements, for such names at their publication had to be associated with descriptive information derived from his study of specimens and earlier literature. He accomplished this massive task through his remarkable mental tenacity and stamina allied to a strong visual memory and a very methodical and practical systematising cast of mind never straying far from the concrete. This is evident not only in his taxonomic works but even more vividly in the journals of his travels, notably his *Öländska och Gothländska resa Åhr 1741* (1745), translated into English as Linnaeus’s *Öland and Gotland journey 1741* written at the height of his powers, when 34 years old. It includes observations on the economy, products, buildings, natural history, antiquities, domestic furniture, customs, runic inscriptions and folk-lore of the Baltic islands of Öland and Gotland; it well exemplifies his wide-ranging curiosity. In its index Linnaeus first used binomial nomenclature for species. The emphasis here and all the time is on first-hand observation and simple direct expression, as in his purely scientific works. Nevertheless, because the visual world made such a deep sensual impression upon his romantic, aesthetically sensitive, mind, he transformed the world of facts into dramatic colourful concrete pictures, as exemplified in his so-called “sexual system” of classification. The typification of a Linnaean binomial name is essentially the recognition of the specimen or illustration, the visual element, which gave Linnaeus the information expressed in a diagnostic name such as *Convolvulus foliis subrotundis, caule repente*. These diagnostic names served as concise guides to identification. They enabled the careful user to distinguish species within a genus and even, in association with Linnaeus’s descriptions of genera and higher groups, to distinguish a given species from every one then known. Both genera and species needed convenient memorable names for everyday use and such names Linnaeus also provided in his *Species plantarum*, in the tenth edition of *Systema naturae* and other works from 1753 onwards.

This innovation in nomenclature has proved Linnaeus’s most lasting, influential and important contribution to biology but many of his contemporaries received neither this nor his classification with joy. They found his “sexual system” repugnant and unnatural: they objected strongly to his changing of well-established generic names and considered his binomial nomenclature for species unnecessary and uninformative, although they welcomed and accepted his diagnostic phrase-names. Even so well-disposed and kindly a correspondent as the Quaker merchant Peter Collinson gently reprimanded him on 20 April 1754: “My dear friend, we that admire
you are much concerned that you should perplex the delightful science of Botany with changing names that have been well received, and adding new names quite unknown to us. Thus, Botany, which was a pleasant study and attainable by most men, is now become, by alterations and new names, the study of a man’s life, and none now but real professors can pretend to attain it. As I love you, I tell you our sentiments.”

Linnaeus’s nomenclatural preoccupation may have dominated his activities but it was far from excluding others. Thus his dissertations, collected in *Amoenitates academicae*, cover a wide range of subjects. His *Philosophia botanica* (1751) helped to standardise botanical taxonomic procedure and terminology: many terms were given their present application by Linnaeus. He took from pharmacy the alchemical signs for man (Mars, iron), and woman (Venus, copper) and used them as male and female symbols.

He maintained a very extensive correspondence with naturalists all over Europe and students came to him and Nils Rosén von Rosenstein at Uppsala from many countries as they had earlier gone to Boerhaave at Leiden. Twenty-three of Linnaeus’s students themselves became professors and thus spread his methods widely. The Linnaean classification of plants and animals provided a framework of knowledge into which information about hitherto unknown organisms could be fitted. Thus it provided a stimulus for further investigation and led his students to travel to remote lands for natural history purposes. A number of these Linnaean “apostles”, Anders Berlin, Pehr Forsskål, Fredrik Hasselquist, Pehr Löfling and Christopher Tärnström, alas, died in the cause of science far from home, but others, including Pehr Kalm and Carl Peter Thunberg, returned laden with specimens for research. Two of them, Daniel Solander and Anders Sparrman, even sailed round the world with Captain James Cook and contributed substantially to the scientific results of his first and second global voyages.

**Linnaean binomial nomenclature**

The Linnaean binomial system consists essentially of giving a one-word name such as *Rhododendron* or *Equus* to a genus and a two-word name such as *Rhododendron ponticum* or *Equus caballus* to an individual species within the genus. Linnaeus did not invent binomial nomenclature even for organisms. The use of such two-word names for species or for kinds within a group occurs in many languages and goes back to remote times. It is indeed the common practice in vernacular nomenclature of everything from knives, forks and spoons, chairs and rooms to owls, rats and other organisms. For example, the two wide-spread British owls were distinguished centuries ago by vernacular binomials, the one as the Barn Owl, White Owl or Church Owl, the other as the Brown Owl or Ivy Owl. Two thousand years ago the Romans distinguished kinds of wheat as *triticum Africum*, *triticum Alexandrinum*, *triticum Haeticum*, etc. Linnaeus’s predecessors writing in Latin, among them John Ray, used such two-word names for species as *Convolvulus major* together with longer names as *Convolvulus minor vulgaris* and *Convolvulus maritimus Soldanella dictus*, the three British species being known, however, in English as “Great Bindweed”, “Small Bindweed” and “Sea Bindweed”. In 1753 Linnaeus provided these three
species with two-word scientific names, *Convolvulus sepium*, *Convolvulus arvensis* and *Convolvulus soldanella*, in agreement with the simplicity, brevity and convenience of their vernacular names. Linnaeus linked each of these specific names for everyday use (*nomina trivialia*) with a descriptive name such as *Convolvulus foliis sagittatis utrinque acutis, pedunculis unifloris* and with references to earlier literature, notably Caspar Bauhin’s *Pinax theatri botanici* (1623), which helped to identify the species concerned and limited the application of its two-word specific name, in theory at any rate and generally also in practice, to that one species. The general adoption by botanists and zoologists of this consistent two-word nomenclature for species during the second half of the eighteenth century came about because Linnaeus introduced it in comprehensive works which naturalists soon found indispensable. These works were, however, long in the making; their genesis, though not their nomenclature, goes back to Linnaeus’s early years. [1]