

# LINNAEUS' NETWORK

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## *Scholarly networks in the age of Linnaeus*

ACCESS TO INFORMATION WAS an infinitely crucial resource before modern times and the practical difficulties, regardless of subject area, to come across relevant and correct information is a difficult notion to grasp for present-day people. The official news channels were few, severely controlled and irregular in their coverage. Verbally transmitted knowledge along the line risked distortion beyond recognition. The magnates of the 17<sup>th</sup> century would therefore invest heavily in establishing client networks across Europe. Networks which could supply them with the necessary knowledge of current events in politics, culture, fashion etc. In exchange for information they reciprocated with financial backing for strategically positioned politicians, officials and scholars. Such relationships between patron and client constituted a mutual exchange for both parties. The former accessed vital and at many times unique information, an important resource of power. The latter acquired economic compensation and occasionally made valuable contacts to their advantage.

These kinds of informal yet relatively impervious networks were a salient component in the social life of the 17<sup>th</sup> and 18<sup>th</sup> century. It had significant importance in communications yet bore relevance to numerous other functions. As there was a discernible lack of public subsidies and general institutions it acted as a career support, social introductions and a financial safety net for ambitious individuals. Anyone who has studied printed books from the time has taken note of how often they begin with one or several more or less servile dedications. This is often the client's way of giving thanks to their patrons and thereby leaving definite remains of the client networks.

During the 18<sup>th</sup> century scholarly networks came to the forefront. Public funding failed to subsidize expansion within the sectors of culture and science. Instead, culture stood to gain from the emerging middle class. However, science, lacking the consumer friendliness of culture, required other means of support – financially and intellectually. Pivotal in this respect were the academies, which were a kind of institutionalised networks.

Throughout the 18<sup>th</sup> century universities increasingly evolved into educational institutions. It has occasionally been claimed that they were literally degraded to divinity schools and that no research worth its name was being conducted. Even though the likeness may have been considerably exaggerated it was nevertheless

the academies who assumed pole position as the leading scientific institutions. If universities directed their energies on tuition and what by today's standards is called basic research, the academies focused on transforming theory into practise. This also applied to the artistic and belles-lettres institutions. The former pre-empted art-colleges, whilst the latter had as its purpose to have culture serve the community by compiling dictionaries and constructing linguistic rules and regulations.

The Royal Swedish Academy of Sciences founded in 1739 became the foremost of all academies established in Sweden during the 18<sup>th</sup> century. In its statutes it states that the Academy must attend to all "sciences and arts that hold any true practical use to the benefit of the community". To such were included all natural sciences, medicine, mathematics, economy, trade, crafts and manufacture. Even the guidance on the usage of the Swedish language assumed greater relevance as the Academy prescribed that all findings should first be made public in one's own native language.

The members of the Royal Swedish Academy of Sciences can roughly be sorted into three categories: patrons, professionals and scientists. The six founders illustrate this constitution well enough: Sten Carl Bielke, Carl Wilhelm Cederhielm and Anders Johan von Höpken were politicians and as amateurs from the aristocracy, can be referred to the first group whilst the industrialist Jonas Alström and the mechanic Mårten Triewald belonged to the second and the young physician Carl Linnaeus, later knighted as von Linné, alone represented the last category.

On a formal level the scholarly republic recognised no social boundaries and in the statutes of the Royal Swedish Academy of Sciences it was written that fellow members were solely elected on their merits – "science, reason and diligence are essential qualities and advantages". It had been felt that the large number of aristocratic amateurs peopling the academies tended to challenge this. Nevertheless, in reality they made substantial contributions to its activities. Aside from giving financial aid they also connected the academies to influential circles and generally assisted in raising the prestige attached to the academy. Linnaeus once held forth that "the Royal Swedish Academy of Sciences consists of two kinds of members: workers and magnates". "The former we have to ascribe all the findings, which illuminate the Academy's documents, the latter provide encouragement and promotion."

The science historian Hjalmar Fors says in a profound dissertation that science during the 18<sup>th</sup> century was very much a social activity where egalitarian protocol was a superficial phenomenon limited by numerous restrictions. Academic work had its own behavioural codes whereby mutual exchange was of fundamental importance. In the name of science the researcher and the professional, e.g. a professor in chemistry and the pharmacologist could enter into a confidential relationship whereby the theorist shared his point of view whilst the practitioner contributed in the form of firm experimental knowledge. The exchange of knowledge was a prerequisite for this notion of egalitarianism. He who received information without reciprocating was duly disciplined for breach of etiquette and frozen out

from the network. According to the regulations of the Royal Swedish Academy of Sciences, a member who failed to contribute his own findings during a two-year period faced exclusion “as being redundant”. This was the formalised network regulating the informal rules.

The conveyance of knowledge became investments of sorts, exchangeable with other services provided by the network. Occasionally established scientists would transfer their outstanding accounts to their disciples/clients enabling their establishment within the network and thereby providing them swift promotions. Patrons would associate with young talents by presenting them with marks of favour, which they could not reject and would therefore place themselves in debt. For instance, the favour could consist of assignments or contacts and was repaid by the young client sharing his knowledge. There were even opportunities for young careerists to struggle their way into the network through lobbying members with their scientific findings.

The academic network system stretched well beyond national borders. Prominent academies emphasizing the natural sciences were the Royal Society in London, Académie Royale des Sciences in Paris, Königlich Preußische Akademie der Wissenschaften in Berlin and the Imperial Russian Academy of Sciences in St. Petersburg. As is evident from their names, royal patronage was a crucial ingredient in the stature and reputation of the academies but it was in equal measures a confirmation of the strong position held by natural science and the credence given its utilitarian abilities. To publicly support the sciences was a prerequisite to assert a place among the civilized nations of Europe.

The most prominent of German academies was the Königlische Gesellschaft der Wissenschaften in Göttingen, not least for publishing the highly respected periodical *Göttingische Anzeigen von gelehrten Sachen* (the title varies), which reviewed scientific literature from the entire continent and in most subjects. The first chairman of the Academy was the Swiss anatomist and polyhistor Albrecht von Haller. Over a period of several years he was its most frequent writer and contributed in an assertive manner to its good reputation. A prerequisite was the extensive correspondence Haller maintained with the academics of Europe. The Swedish physician Nils Rosén von Rosenstein and not least the Royal Swedish Academy of Sciences’ secretary during 33 years, the astronomer Pehr Wilhelm Wargentin, enjoyed a long and confidential correspondence with Haller and its importance to the Swedish scientific community’s international reputation can not be overlooked. Through the efforts of Haller and others the findings of Swedish scientists spread throughout the continent despite the Royal Swedish Academy of Sciences’ ruling, dictated by domestic usage, that all documents be written in the author’s native tongue.

However, one concern was that Sweden’s brightest shining star, Linnaeus, had previously fallen out with Haller after the latter in 1745 had written an unfavourable review of *Flora Svecica*. Their previous friendship turned into petty enmity which escalated over the years. Finally the schism reached a level whereby Wargentin feared that it would disfavour Haller’s relationship to the Royal Swedish Academy

of Sciences. Wargentin therefore heedfully strived to usher in other candidates to assume Haller's reviews, among them the Swedish born professor in medicine at Göttingen Johan Andreas Murray. Networks and correspondences were sensitive matter simply because they in the end depended on personal contacts and if one link in the chain snapped it could induce far-reaching consequences for all those involved.

Another approach in which the academies could tie international contacts was to recruit foreign members. Corresponding member is a term still used though it was to be taken more literally during the 18<sup>th</sup> century. Then as now it was more often an honorary appointment rather than participating representation. For the single scientist it was meritorious to hold memberships of several academies and the academies were willing to allow the renowned membership to increase the academies' radiance. However it was not mere vanity which lay behind such summons. The scholarly correspondence filled the same function as the conferences and symposiums of today. The majority of scientists would at best commit to an occasional expedition abroad, seldom more, and the slow communications made it near impossible to meet at larger gatherings. The letters would therefore function as present-day lectures or conference acts: via them they could exchange views on preliminary thoughts.

How does Linnaeus fit into all this? His name has been noted in passing and his work illustrates several of the discussions in a clarifying manner.

His most appreciated works in Swedish are undoubtedly the travel books. The first journey was undertaken in 1732 commissioned by the Royal Society of Sciences of Uppsala to, as it was known, survey the three kingdoms of nature in Lapland. The journey was succeeded by four others, of which three were ordered by the parliament and the government. Linnaeus' travel books are charming literature in an ageless way where impressions are lined up chronologically. The information is of varying character and the systematisation, which is Linnaeus' distinguishing mark, is elusive. As inventories they were regarded to be of value as the government knew very little of what natural resources the various counties had.

The journey to Lapland took place during Linnaeus' youth and he put it to good use when furthering his career. As he travelled to the Netherlands to receive his medical degree he made use of the Sami objects he acquired to attract attention to his person. He remained three years in the Netherlands. Sten Lindroth writes: "He arrived as an unknown student from Sweden and left the country as the prince of all botanists". Once in place he exerted all his talent to make advantageous contacts. Of his own accord he sought contact with the physician Boerhaave and the botanist Gronovius, two aging titans with extensive contacts. With their support most doors were opened. Gronovius would also fund the publishing of *Systema naturæ*, which lay the foundation of all Linnaeus' latter-day fame.

In the short term, Boerhaave introducing Linnaeus to the professor of botany Johannes Burman was of greater significance. Through Burman he got to know the enormously wealthy George Clifford, director of the East India Company. Clif-

ford soon wanted Linnaeus employed as the manager of his gardens and library but Linnaeus was already committed to work for Burman and this appointment could not easily be retracted. The informal contract was resolved by Clifford offering Burman a book long sought after by him. Through the agency of Clifford, Linnaeus was able to visit Paris and England, where he got in touch with academies and universities. Over time he became a member of the academies in Stockholm, Uppsala, St. Petersburg, Berlin, Vienna, London, Montpellier, Toulouse and Florence. Assisted by connections, favours both ways, Linnaeus had in an astonishingly short time acquired the appointment as *princeps botanicorum*.

Following his return to Sweden Linnaeus went to Stockholm to practise medicine. Career wise this was but a temporary setback yet connections were made in the council and later even to the successors of the throne. These contacts were of the utmost importance for his social stature in his native country. At this stage the Royal Swedish Academy of Sciences was founded and in 1741 he was awarded a professorship in medicine at Uppsala. During the 1740's he also undertook his aforementioned travels in Sweden. Although he despised arduous travelling he felt that these publicly appointed assignments could not be refused.

Nevertheless in 1749, after the journey to Skåne, Linnaeus travelling days came to an end. From the vantage point of his professor's chair Linnaeus would instead delegate the rough work to his students. He would insatiably ask them to send more material to use in his research and approximately twenty of his disciples, "apostles", were sent to all corners of the world at their master's request.

Linnaeus' relationship to his disciples has been evaluated in various ways. Some have described him as ruthless in his quest for natural specimens, others characterise him as a loving patriarch. Yet those who obtained his trust were a carefully selected group from his own students – more than three hundred were at his call. He was never casual about sending his protégées to foreign and unknown regions of the world and they were also most likely aware of the risks involved in such travelling. Those who survived the ordeals returned to excellent career opportunities. With few exceptions they acquitted themselves well and several – Kalm, Solander, Sparrman and Thunberg – all became renowned men. By supporting his disciples Linnaeus had fulfilled an ideal line of development in the social mobility of the scholarly republic: from enterprising student to inspiring professor and from client to protector.

*Jonas Nordin*