

2 | *The formal framework*

Mission and organisation

This chapter describes transformations in the formal framework for the activities of the Academy of Sciences from 1739 until the beginning of the 21st century. The exploration of these institutional changes is based on the wording in statutes and instructions, which have been amended over time. New wordings in such documents are significant in that they are indications of the reasons behind the changes. This chronological presentation is organised by the years in which new statutes, with the exception of the most recent, have been established: 1739, 1820, 1904 and 1974. The chapter ends with a discussion of the extent to which these turning points coincide with formative changes in the Academy's history.

The presentation makes use of some simple distinctions to focus attention on three aspects of the object being studied: the *Academy itself*, with its members, classes and meetings; the *internal organisation*, in the form of officials and other support for its activities; the *external organisation*, in the form of institutions that have come and gone. So that the institutional evolution will not appear to be a wholly intra-academic process, it is related to transformations in the fields in which the Academy has been active, to domestic and international contexts that have influenced the Academy and which it has itself influenced.

Origin, successes, tribulations: 1739–1820

A proposal for statutes for the founders' intended society existed prior to the first meeting in June 1739. As the institution was new, there was no current activity on which to base these statutes but, as implied above, there were both domestic and foreign predecessors to use as inspiration – the circumstances around the origin of the Academy are examined in more detail in chapter 4. Many of the 48 articles are very brief. The image they convey of this new

Jag undertecknad lofvar och försäkrar härmed, på heder och ära, och så visst jag om mitt goda namn och ryckte är om och angelägen, at jag vil heligt och obrottsligt hålla de Reglor och Författningar, som redan äro gjorde, eller hädanefter af Academien skulle komma at göras, samt at mitt upförande skal svara emot Inrättningens ändamål, nämligen GUDS ära, Konungens och Fäderneslandets välgång, jämte de til Academiens föresatte göromål hörande nyttige och lofvärde Vetenskapers och Konstlers upkomst och tillagande, ej underlätandes at, som en nyttig Landets Inbyggare och en ärlig Svensk Man, därtill för min del bidraga, så mycket görligt är, hvarsöre jag och vil vinnlågga mig därom, at jämte Academiens Reglors skyldiga efterlesnad, med all flit och åhuga söka at befordra inrättningens uprätthållande och förkofring, samt at afvärja alt, hvad den samma rubba, försvaga eller omkullkasta kan; hvilket alt jag, med mitt eget Namns underskrift och Sigills vidtryckande, bestryker.

Jac. Berzelius.



creation is supplemented by the minutes of the first meeting and the precursor to the first issue of *Swenska wetenskaps academiens handlingar* [*Transactions of the Swedish Academy of Sciences*] which was published in the autumn.

An introduction to the statutes states that people are motivated to work together for the public good, and that the arts and sciences can contribute to a nation's success if they are disseminated to the public. The conclusion is clear:¹

And so this institution for the advancement and dissemination of the Sciences and Arts appears necessary, whereas it encompasses no other intention than the public, no other means than those that serve this purpose, and no other Limbs than Sensible, Honest citizens who love their Fatherland, without being fixed to any given age, service and dignity of Office, or to a certain limited number of People.

The purpose of the proposed institution is defined in the assurance to be signed by each member: "The honour of God, the prosperity of the King and Fatherland".

The first article explains that the institution should endeavour to work with all arts and sciences that have true benefit, but eight fields are particularly mentioned:

Physica experimentalis.
Historia Naturalis, Mineralogie, Botanique, Zoologie.
Chymie.
Medicine, Anatomie, Chirurgie.
Mathematical Sciences.
Oeconomie.
Commerce.
Arts and Manufactures.

A little later, the various sciences are grouped into five general categories: *Astra, Elementa, Naturalia, Artificialia, Lingua*.² However, these specifications of activity and interest do not entail any classification of the members.

The rules also state that a written work must be printed in Swedish as soon as it has gained acceptance. The publications will allow the people to enjoy the fruits of "new findings, experiments and discoveries". Meetings shall be weekly, at which submitted texts can be read out and discussed.

The organisation is basically intended to support these activities. One chapter covers the president, who has something of an honorary position that runs quarterly and is allocated by lottery. But the president is also ultimately

ON ADMISSION TO THE ACADEMY OF SCIENCES, members signed an assurance regarding their conduct and devotion in a book made specifically for this purpose. Printed forms were later used; the picture shows one of these, signed by Jacob Berzelius.

responsible for activities; he represents the Academy and leads its discussions. If these discussions become too divisive, the president must discontinue “the disputed conversation” because trust and friendship are the soul of the institution. The secretary is elected for an unspecified period and must have the gift of writing and speaking well. He deals with submitted texts, manages correspondence and supports the president. Another two chapters cover the archivist and the minute-taker, who mostly assist the secretary with writing and other tasks.

The seventh and final chapter states how new members are to be admitted. Opportunities are relatively open, as the grounds for selection have only one negative specification: “No one may be admitted as Member of this *Academie*, who does not have the greatest affection for the beneficial Sciences and Arts, and who has no insight in any specific part of them.” The possibility of excluding a member who has not contributed to activities for two years clarifies the intention of having working members.

THE ABOVE PRESENTATION indicates that the new organisation was to dedicate itself to *arts* and *sciences*, not to science in the more abstract sense of recent times, as a collective noun. Nor should it dedicate itself to fine arts, as arts rather meant various areas of technical skill, such as the art of surveying. The nouns *findings*, *experiments* and *discoveries* supplement this picture. After studying the parlance of the time, Bengt Hildebrand concluded that, “in the ears of contemporaneous Sweden, the name Academy of Sciences primarily sounded like the *Academy of Knowledge*”.³ The emphasis was on the natural sciences in a broad sense, with no clear and modern distinction between basic and applied. In comparison with contemporaneous scientific societies in other places, it was somewhat original to include medicine and economy, which primarily meant agricultural issues.

As we will see in the following presentation, three main categories of verbs can be linked to all these kinds of knowledge. The organisation can *create*, develop or produce, knowledge, for example by promoting research. It can *disseminate* knowledge, say by publishing new discoveries and rewarding beneficial findings with prizes. The organisation can *gather* and maintain knowledge, convey it over time rather than in space, so to speak, perhaps using collections, libraries and archives. As we have seen, the Academy’s emphasis was originally on disseminating knowledge. But members were also to cultivate the sciences and contribute new findings, while printing and the post of archivist were aspects of endeavours at collection. Gathering and disseminating findings put them into circulation, so they could meet new interpreters and generate new knowledge.

The recurring adjective *beneficial* designates the primary foundation for the legitimacy of these knowledge formation processes. The new organisation

would be relevant to the nation in that its members, through the Academy with its cultivation of beneficial knowledge, should contribute to the fortune of the fatherland. We will see that formal tasks, i.e. the organisation's prescribed purpose, and its actual functions do not always entirely dovetail. We will also see that the significance of the Academy may seem different from the perspectives of the institution and the individual member, and that the organisation needs to have functions and engage in matters outside itself in order to maintain credibility and legitimacy, both inwards and outwards. For the institution to be motivated by something more than the weight of tradition, it must appear relevant to contemporaneous actors and interests.

The Academy's primary means for its patriotic mission was the quarterly publication of its *Transactions* and holding meetings to promote this work. It was thus an association for reviewing work before it went to press, where the rate of publication determined the quarterly change in the post of president, as every president was responsible for one issue. With its meetings and *Transactions*, the Academy had rapidly established personal and impersonal fora for communication that contributed to the consolidation of the new organisation, both inwards and outwards. Even if the society had an elite emphasis it was relatively open, by the standards of 1739, and had no fixed number of members, for example eighteen, as there came to be in the Swedish Academy. In principle, the only people who were excluded were those who had no love of the beneficial sciences. The procedures were also relatively egalitarian: lineage and position should not influence discussions; the post of president was allocated by lottery; and there were no class divisions. At the second meeting it was decided that, unlike some other societies, there would be no honorary members. We can also note that the men who initiated this society were fairly young: von Höpken was 27 and Linnaeus 32, while Triewald and Alström were older than the others at the ages of 40 and 54. So, the Academy of Sciences was not founded on an initiative from above, from royalty, like the Royal Swedish Academy of Letters and the Swedish Academy.

The organisation of the Academy of Sciences was reminiscent of that of the Royal Society. Voltaire had contrasted the British society with his homeland's Académie Royale des Sciences.⁴ This tension between societies and academies has been thematised by later historians. The French academy was exclusive and closed, with twenty "pensionnaires" who were paid to cultivate their sciences. In addition, there were different classes of adjunct and corresponding members, as well as honorary members who possessed more influence than scientific merit. The organisation was hierarchic and ultimately governed by the king, who funded its activities. It did not have the same need to turn outwards, towards the public, as the British society, the activities of which were primarily funded by fees from its more than 300 "Fellows" and through donations. State support brought opportunities but also governance,



THE FIRST DIVISION OF MEMBERS of the Academy of Sciences was done in 1740, when the members wrote up their various areas of interest – more than one was possible. The spread shows who and what subjects were arranged under the third class, *Naturalia*.

something an independent society escaped, even if this freedom entailed other dependencies.

Bearing in mind the Swedish society's location between these two poles on the international field of academies, it may seem a little surprising that, when choosing the word *academy*, von Höpken referred to how the expression was used in France. This primarily concerned drawing a distinction from the normal understanding of the concept in terms of higher education institutions; teaching was also a task of the Royal Drawing Academy, founded in 1735 and the precursor of the Royal Academy of Fine Arts. Also, neither the primary word or its adjectival determination were obvious. The first suggestions were the *Oeconomisk Wetenskaps Societet* [Society of Economic Sciences] and the somewhat more idiomatic *Oeconom. Wetenskapsgille* [Fraternity of Economic Sciences]. At that time, more options were possible. Uppsala had the Royal *Society* of Sciences; in the 1770s the Royal Physiographic *Society* and the Royal *Society* of Arts and Sciences were founded in Lund and Gothenburg

– the Swedish word for “society” is different in each of these names: *societeten*, *sällskapet* and *samhället*.⁵

ON 31 MARCH 1741, the Academy of Sciences also received a royal sanction, after which a slightly amended version of the statutes was approved.⁶ The Academy also received the right to self-censor its publications. At the same time, the authorities started to approach it to obtain expert statements on various issues and, fairly quickly, a function as semi-official consultation body was established. The franking privilege obtained by the Academy contributed to an image more like that of an authority. In a way, integration into the structures of the realm was consolidated in 1747, when the Academy received a royal prerogative for the publication of astronomically sound and correct almanacs. This income-bringing monopoly entailed a good and stable financial basis for the young institution, as well as a channel through which to disseminate beneficial knowledge to the public. The almanac monopoly remained through various organisational forms right up until 1972. We can see a measure of trade in this knowledge management: expertise and privileges were exchanged.

The statutes lasted until 1820, but this formal stability does not mean that the organisation did not change, although the formalities are difficult to follow because the parlance was so varied. Additionally, many decisions were made but never implemented – and practice on an issue could be institutionalised without leading to a formal decision about the organisation, even less to revised statutes. For example, at an early stage, “Economic Statutes” supplemented the basic statutes. These have not been preserved, but they functioned as a type of procedural document, with a division into different classes for the expert management of submitted findings. They may have encompassed regulations on the caretaker, copper etcher and other help-meets, as well on the 18th century’s mixed group of younger adepts or subject novices, not seldom the members’ sons, with the songwriter and musician Carl Michael Bellman as the most famous of these.

The organisation of work came to be affected by a change to the financial situation in 1746, which was when the Academy received funding from what came to be called the Thamic donation. The *quid pro quo* was to provide lectures at Riddarhuset, the House of Nobility. Using beneficial contacts, it was possible to channel funds to pay the secretary, whose circumstances were changing as the honorary character of the position waned. In one sense, this entailed a professionalisation, even though activities were basically borne up by enthusiastic amateurs. From 1759, the secretary could instead be paid using almanac funding; for the Thamic funding, a physicist was contracted and tasked with holding lectures and assisting the secretary. The addition of a paid scientist contributed to a somewhat more French-style academy



ESSAY

Franking privileges

s. 387–393

organisation. In turn, the task of lecturing led to amassing a collection of physical instruments used for various demonstrations.

Instruments for the astronomical sciences, which united many of the time's academies in international cooperation, were gathered in the observatory built by the Academy in 1748–1753. This also came to include the secretary's residence and workshops for instruments and globes. Thanks to donations and purchases, the Academy soon also had a book collection. This became a library that grew through exchanges with learned societies in London, Paris, Saint Petersburg, Copenhagen, Trondheim and other cities. Through small gifts and large donations, but without any real plan, a natural history collection also arose, which the Academy had to manage. Like other popular natural history cabinets of the time, it gathered plants, animals and minerals from near and far, as well as sundry curiosities, such as those of a more cultural interest.⁷

The almanac privilege and the Thamic funding, along with the growing collections and activities, resulted in profuse financial activity, the management of which required some form of organisation. A bookkeeper was employed in 1749, and primarily spent time on the blooming almanac business. He was replaced after around ten years, when irregularities were discovered. A committee was appointed, streamlining the financial administration in 1758. The people on the committee became permanent and were called “office delegates”, but from the 1780s they went under the name of *Inspectura ærarii*, “the treasury inspectors”. Naturally, the secretary and sitting president were members of this committee.

In 1776, with the help of a donation, a vice-secretary was appointed to ease the secretary's workload. A larger donation in 1791 saw the founding of the Bergius Foundation, tasked with conducting botanical studies and running a gardening school. The foundation was to have a separate economy but answer to the Academy of Sciences, which also appointed the director, the Bergius Professor.⁸

We can see that the expansion of various collections contributed to the growth of an external organisation, while an internal organisation was institutionalised to support and manage the activities linked to the Academy. This interaction between the collections, institution buildings and staff will be further developed in chapters 4 and 5.

TOWARDS THE END OF THE 18TH CENTURY, circumstances began to change for the Academy of Sciences and its activities, in other ways than through donations. The founding generation was on its way out. Linnaeus, the international fixed star, died in 1778. Five years later, astronomer Pehr Wilhelm Wargentin died. He had been secretary since 1749 and, with his scientific authority and his international contacts, had led the Academy's internal work

and upheld its reputation outwards for 34 years. He was replaced by two secretaries, but it was largely the *Inspectura ærarii* that came to govern the Academy. After von Höpken died in 1789, some people wanted to reform the statutes he had protected from change. The period of the presidency was extended from three months to six months, but with no revisions to the statutes.

Nevertheless, in 1798 the decision was made to divide the members into classes, a principally significant organisational innovation. The decision was preceded by years of inquiries, proposals and counter-proposals – there was apparently no natural consensus on how the Academy would best be organised, nor perhaps on the true nature of the organisation’s mission. One reason for grouping the members on the basis of their specialist knowledge was that it would lead to an increase in the level of expertise, such as the expert evaluation of candidates in elections for membership. Critics believed that division into classes would entail enforced, top-down regulation that was incompatible with the principles of the Academy. More practically focused critics felt that too few members were proposed in their own classes.

Finally, seven classes were decided upon, with a fixed number of places for members in each; in 1762 an agreement had been made for a ceiling of 100 members, because the Academy’s reputation would suffer if it accepted too many members with weak scientific merits. The classes were: “*General Economics and Agriculture*” (15 members); “*Trade and Civil Industry*”, including mining (10); “*Knowledge of Outer Nature and Natural History*”, including geology and botany (15); “*Knowledge of Inner Nature and Experimental Philosophy*” (15), including chemistry and physics; “*Mathematical Sciences*” (18), primarily geometry and astronomy; “*Medical Practice*” (15), with medicine and surgery, as well as “*Veterinary Medicine*”; “*Literature, the History of the World and of Learning, Languages, and other useful and graceful Sciences*” (12).⁹ The seventh and final class was a matter of dispute and, in practice, came to be an honorary class for members who brought influence but less scientific expertise. As we have seen, there were no honorary members alongside the working members, even if the king, in the form of patron of the Academy from 1747, may be regarded as such. The election procedure was simplified, but continued to be managed in plenum, which meant that one motive for the class divisions became less relevant.

Another innovation came a little later, in 1815, when the king granted funds for rewards, in the form of jettons, to be awarded to attending members at meetings.¹⁰ This French-inspired custom had already been introduced to the Royal Swedish Academy of Letters and the Swedish Academy in the 1780s. However, this reform did not lead to greater participation in meetings.

Changes to the procedures of the Academy itself did not have much impact on its declining radiance and influence. External circumstances had also changed. Gustav III’s *coup d’état* in 1772 led to the Age of Freedom’s parlia-



ORDINARY MEMBERS OF THE ACADEMY did not receive any pay for attending meetings, but for many years they were compensated for their presence at general meetings through the award of a *jeton de présence*, normally minted in silver. The jettons in the picture are more recent and were made from chocolate, in association with the 250th anniversary celebrations.

mentary power being replaced by a fairly absolutist monarchy. The powers of the state became more interested in taste and intellect, art and literature, than in science and utility. The “Iron Age” that followed the assassination of Gustav III in 1792 was difficult for many; the Swedish Academy, founded by the king himself in 1786, was suspended for two years. Subsequent Romantic tendencies did not focus on the “beneficial sciences”, instead they contributed to the greater influence of philosophical and literary circles, attracting the actors of the period. The lack of shining stars in the Academy of Sciences meant that its radiance dimmed – its lack of influence meant it failed to attract people with influence, they were not as engaged as they had once been.

Changes in external conditions also included new actors on the Academy’s fields of activity. The Swedish Patriotic Society for Encouragement of the Realm’s Arts, Crafts and Industries had been founded in 1766 and, in 1771, it became the Royal Patriotic Society. Its interest in industry overlapped with that of the Academy of Sciences. Agricultural issues were subsequently highlighted by the societies for husbandry and economics that were being established; they received their own academy in 1811, when the Royal Swedish Academy of Agriculture was founded.¹¹

The Swedish trends were not unique. The societies for enlightenment were not only academies and learned societies, but also reading associations, patriotic societies and other groupings. For example, the Royal Norwegian Society of Sciences and Letters, founded in 1760 with both a learned and patriotic mission, had to share the field with the patriotic Norwegian Society for Development after 1809. Sweden also fits into a western European pattern of general decline for learned societies from the end of the 18th century. The Académie Royale des Sciences and other academies were closed during the terrors of the French Revolution. The subsequent Napoleonic Wars did not make it any easier for scientific institutions to maintain contacts and activities.¹²

This era also saw another change: the growth of a new kind of university, with teachers who were to teach *and* research, with students who were expected to be able to handle academic freedom. German universities were important in the reform movement that started at the end of the 18th century. This movement has been symbolised by the university that opened in Berlin in 1810, an institution associated with Wilhelm von Humboldt, who was short-lived as a Prussian official but, in retrospect, is significant in reforming education. In a text about the organisation of institutions for higher education, he discussed the relationship between universities and academies.¹³ There was no doubt that the sciences would progress more dynamically at universities of the type he favoured, as research findings would be the subject of ongoing debates between young and vital intellects. And because universities educated young people, they were closer to real life and the needs of the state than a learned academy. Was it really feasible to maintain expensive but not always productive academies alongside the universities, asked Humboldt. However, he concluded that it was best for there to be interaction between the different institutions.

Development in the field of higher education, due to the founding of institutions with a research imperative, brought changed circumstances for the academies, something they had to relate to in the future.

A fresh start and scientific advances: 1820–1904

After Wargentín, the secretaries of the Academy of Sciences succeeded each other relatively rapidly, but this changed with the death of Olof Swartz in 1818. He was not only secretary, but also curator of the natural history cabinet, director of the Bergius Foundation and professor of natural history at the Caroline Institute, an institution for medico-surgical education that was established in 1810. The Inspectura ærarii felt that the Academy's, the Foundation's and Swartz's collections and books should be inventoried and separated. A Bergius professor was appointed at the subsequent general

meeting and was also appointed curator of the Academy's botanical collections; a curator for the zoological collections, who also became librarian, was named. A little later, inspectors of the collections were appointed. The collections as well as the library were to be brought to order.¹⁴

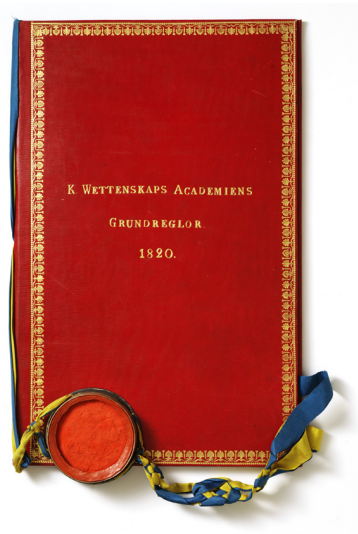
Additionally, Jöns Jacob Berzelius, professor of chemistry and pharmacology at the Caroline Medico-Chirurgical Institute, was elected to the post of secretary. The pugnacious Berzelius had already attempted to reform the election of Academy members and would come to criticise Uppsala University, which he considered stagnant and ready for replacement by a modern, central university in Stockholm. With his scholarly authority – he became a member of almost 100 academies and societies – Berzelius was to lead the Academy for 30 years, until his death in 1848.

During this period, an Academy member, Baron Gustaf von Paykull, donated a major zoological collection to the king, or, more precisely, the King in Council, i.e. the Swedish state, which immediately approached the Academy of Sciences. It accepted, becoming the principal for a national museum of natural history. Meanwhile, the *Inspectura ærarii* and a committee were working on numerous issues, such as instructions for the curators, pay rises for officials and revisions to the statutes. When an increase in the price of almanacs was granted, one member opined that the Academy should carefully consider the activities for which its funding would be used in the future.¹⁵

This hesitation, combined with a sense of approaching transition, ended when Berzelius, who had been on a long trip abroad, assumed his new office at the end of 1819. A year later the king promulgated the new statutes, in which rules of procedure were incorporated. In hindsight, this course of events appears to be a formative process for the Academy of Sciences as a knowledge organisation, bringing opportunities for a determined actor to indicate new paths ahead.

THE FIRST ARTICLE states that the mission of the Academy is, more or less as previously, “to follow and promote the general growth of the Sciences, and to distribute their benefits in the Fatherland”.¹⁶ For this purpose, “such Men, who are considered best fit to contribute”, should be brought together, as 100 domestic members, to be precise. They are organised in nine classes, dividing knowledge in a new manner and presenting the parts in a new order: pure mathematics (6 members), applied mathematics (6), practical mechanics (8), physics (6), chemistry and mineralogy (12), zoology and botany (16), medicine (15), economic sciences (15) and general scholarship (16). When a member has “through death resigned”, the members of that class can propose candidates, in writing and “with comprehensive presentation of the candidate's service to the Sciences”. The class then evaluates and ranks the candidates, after which the final vote is taken at a general meeting.

THE ACADEMY OF SCIENCES received its first statutes in 1741. These were first revised in 1820, when the newly elected permanent secretary, Jacob Berzelius, started his work on modernising the Academy. He introduced new class divisions and annual reports, and founded the Annual Meeting of the Academy – held every year on 31 March.



Unlike previously, the statutes include the regulation of foreign members. These should be 75 in number and are elected in the same way as the Swedish members. They also have the same distribution across classes, apart from the last two: economic sciences can have six foreign members, general scholarship none. A somewhat earlier attempt to have corresponding foreign members – which was not regulated in the statutes – is treated with silence.

In relation to the old statutes, we note that the wording in the new ones is still in terms of the sciences, in plural, but *the arts* and the adjective *beneficial* have disappeared. Even if the professor of technology will still cover “Industries and Arts”, the emphasis is on science. As an organisational element, the new classes are more reminiscent of academic disciplines than of industries and arts. In the divisions, mathematics comes first, with pure mathematics as the very first, then applied, after which come the natural sciences. However, the ninth and final class with its general scholarship is the largest, but is entirely lacking in the international context. Class divisions have been modified over time, but the basic order that was institutionalised in 1820 has been passed down: first mathematics, and finally a more or less amorphous class of a miscellaneous character. Subsequent alterations in this basic order appear to indicate changes in external circumstances, which makes it interesting to note the adjustments to classes and class names, and to the distribution of members across the classes.

BETWEEN 1828 AND 1915, the Academy of Sciences and the Museum of Natural History were housed in the Westmanska building, located between Drottninggatan and Adolf Fredrik Church. The photo shows what the Session Hall in the building looked like in 1910. ►





The collegial expert assessment of a class determines who can become a new member, while emphasising the importance of the candidate's services to science. The new statutes clearly signal a new focus for the Academy itself. However, the two main types of cases to be dealt with are not new: referrals from the King in Council, and academic theses from members and external parties. Other tasks that are mentioned are the awarding of prizes and support for scientific travel, often using funding from one of the many donations that have been received.

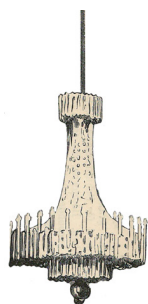
The Academy's internal organisation also changes due to the new statutes. A lottery no longer determines the appointment of the president, instead he is elected for a period of one year and chairs all the meetings and all committees. The secretary receives the epithet "permanent" and a central, operational role: rapporteur for all classes, a natural member of all committees. He is paid by the Academy and provided with "an Office and necessary Assistance". An employed clerk deals with minutes and other paperwork. The accountant manages the finances, the architect the properties. The ombudsman is a legally competent official.

An organisation with three committees is introduced. The *Administrative Committee*, called the *Inspectura ærarii*, is responsible for finance and consists of ten elected members, as well as the president and secretary, assisted by the administrative officials. Using three elected auditors, the Academy annually reviews its administration, for example the valuable documents in the iron coffer to which the president, secretary and accountant each have a key. The *Inspections Committee* supervises all the Academy's establishments for the promotion of the sciences and has four sections: the astronomical, the technological and physical, the botanical, and the zoological inspection, with the latter also being responsible for the library. The *Editorial Committee* is responsible for publishing the *Transactions* of the Academy.

The external organisation was shifting and not so formally elaborated, but it is reflected in the four sections of the Inspections Committee. The observatory and its astronomer, with the almanac business and instrument making, was a firmly material institution. The physical or technological institution, with its Thamic lectures and instrument collections, was subject to continual change. Bergius was its own foundation, but under the auspices of the Academy of Sciences. The natural history collections grew and gained a clearer institutional framework through the establishment of the Swedish Museum of Natural History. This was under the Academy's supervision but, because of

THE ACADEMY'S COFFER, which was used to store valuable documents. The president, secretary and bookkeeper each had a key to one of the three locks – to ensure that no one would be able to open the coffer on their own.





ESSAY

The Annual Meeting
p. 588–593

its status as a state institution, received its funding from the King in Council. In practice, the collections of the Academy and the state came to be mixed. The library also grew, through donations, exchanges and acquisitions.

Following French example, the institution of an annual “Public Meeting” is introduced, in the form of a celebratory day on 31 March, the anniversary of the founding of the Academy. Reports about progress in the physical and chemical sciences should be read by the secretary, and in their different fields by the scientific officials: the astronomical observer, the technology professor, previously called the Thamic lecturer, the botany curator, the zoology curator. We can note that the date of the Annual Meeting is a muddle: the meeting of the founders in 1739 took place in June, but the king promulgated the statutes on 31 March 1741.

THE NEW STATUTES were detailed in what they covered, with a greater focus on *how* things should be done and organised than on *what* should be done. The organisation became more elaborate and formalised. Some things entailed the codification of established practice, while other things became heavy-going. For example, work in the Editorial Committee soon came to a halt, and it was a challenge for the secretary to obtain annual reports from all those who should submit them. Even if everything was thus not put into practice, the new statutes came to constitute the formal framework for the activities of the Academy of Sciences for a long period, while revisions as well as rules of procedure and instructions were added subsequently. New statutes were first established in 1904, but did not signal a new direction in the way that the statutes from 1820 had done in relation to the original Academy; much of the institutional framework is still recognisable today.

In various ways, scientific aims became more marked, for example in 1824, when institution directors and curators at the Museum of Natural History adopted the title of professor from the universities, from where increasing numbers of members were being elected.¹⁷ When, with increasing energy, the task of creating new knowledge was accepted, the character of the publications also changed. Scholarly specialisation, which enabled increasingly focused and narrow studies, took off in the 19th century and also influenced the Academy of Sciences. At the same time, this trend towards specialisation was balanced by a striving towards a general overview and a desire to build systems that related the details to greater wholes. Still, scientific academies are ponderous institutions, not least because of the slow replenishment of the stock of members. The speed with which the character of the Academy changed should thus not be exaggerated, and some of the things it did may appear surprising from the perspective of later times. For example, in the mid-1840s, it could process information about a remarkable hailstorm from a rural science enthusiast and return a letter-writer’s revised description of a *perpetuum mobile*.¹⁸

If the Academy on the one hand looked inwards, towards the sciences, it also looked outwards, towards the laymen who, due to the experts' specialisations, gained a more distinct character of being laymen. Professionals and amateurs are, so to speak, conditional on each other. After the political revolution of 1809, Sweden had a new constitution and began to gain a new public sphere, in which the role of the citizens changed. Like many other institutions of the time, the Academy of Sciences appeared in this public life, not least with its new Annual Meeting. It was "beholden to respect the public and at least once a year describe what has been achieved," said Berzelius. The perpetually active secretary was also involved in the Society for the Dissemination of Beneficial Knowledge, which, from 1835, published the journal *Läsning för folket* – Reading for the People.¹⁹

The Annual Meeting's descriptions of various scientific areas were to articulate knowledge about the progress of knowledge in a way that was accessible for an audience with a general education. At the same time, these reports disseminated information about the Academy. The public appearance then took another round when the annual reports were printed. Still, even the first time this was to be done it was explained, a little snidely, that one report had not reached the printers in time.²⁰ As secretary, Berzelius put great effort into his reports, which swelled to become general inventories of the latest scientific findings. They were translated to other languages and were recognised by experts in the international field of science – and so this circulation of knowledge helped to bring glory to the Academy of Sciences.

However, at the Annual Meeting it was royalty that brought glory. Their presence attracted others to the festivities, which had to be moved from the Academy's own premises to the great hall of Börsen. Eventually, it was decided that a guard of 18 men and subalterns should be requisitioned from the Office of the Commandant General, and that invitations should be sent to "The nation's high-ranking Officials, notable writers and science lovers, etc., who are present in the city".²¹ Through its highest patron, the Academy was related to the era's royalist officialdom, which had a somewhat tense relationship with the public citizenry that was developing. That the Academy of Sciences was a state institution is highlighted by the 1823 Riksdag decision that altered the constitution to allow it, and the universities in Uppsala and Lund, to appoint two members of parliament. They did so until the Riksdag of the Estates was dissolved in 1866. This attempt at reforming the questioned clergy estate is, in turn, a sign of the controversy regarding the issues surrounding the political representation and popular education of the citizenry. Societal forms changed character when voluntary associations replaced corporations as estates and guilds.²²

THE MODERN ACADEMY OF SCIENCES, with specialist knowledge and research on its agenda, grew as part of this society in transition. Its internal organisation remained fairly stable, even if it was adapted to the changes of the time. In 1831, the Inspections Committee was given more members and two new areas of responsibility, the mineralogy collections and the library, while the duties of the librarian became a separate position. Changes to this committee reflected changes in the external organisation. The Museum of Natural History gained new departments, the library grew.²³

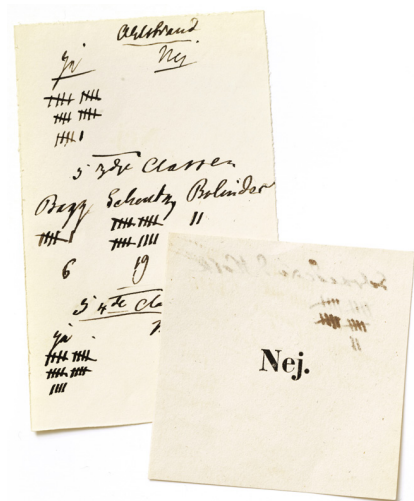
New revisions were made in 1842.²⁴ In an introduction, the King in Council explains that the changes are necessary, partly because of difficulties in the literal application of some rules and “partly due to the Academy’s increasing obligations and the addition of more Officials”. The ninth and final class consists “of persons who possess merits in the sciences and learned professions in general,” i.e. an even more open category than “General Scholarship”. Of the secretary, it is said that, in addition to the expertise required for the position, he must have “an established, preferably European, reputation” as a researcher in the natural sciences. The procedures for appointing other permanent officials are specified. For the scientific officials, such as the astronomer, a proposal is drawn up by the president and secretary and the relevant class, after which the Academy votes. Proposals for the librarian and accountant are drawn up by the *Inspectura ærarii*, which independently hires other administrative officials, expanded with a clerk.

The following year, specific regulations and instructions were adopted for the officials, whose number had expanded with an editor for *Sveriges statskalender*, the Swedish state directory.²⁵ The instructions regulate one aspect of the turn towards the public sphere: opening hours for the museum and the library. It is possible to sense problems that gave rise to some clauses. For example, the regulations state that curators at the Museum of Natural History may not possess private collections or take part in exchanges and trades for their own benefit. They also state that neglecting to submit a manuscript for printing in an annual report must lead to some pay being withheld.

The separate procedural statutes meant that there are no rules of procedure in the revised statutes of 1850.²⁶ They do not entail major changes, but the mission statement gets a new wording: “The Academy’s mission is to promote the Sciences, follow their development and increase awareness of them through printed texts.” The second-to-last class once again receives a new name – “Technical, Economic and Statistical knowledges” – which we can see avoids talking in terms of sciences. The Administrative Committee loses the name of *Inspectura ærarii*. The Inspections Committee once again receives a new unit. The procedural statutes, which were revised at the same time, take up the rewards and stipends that the Academy may award.²⁷



BALLOT BOX used for secret ballots in the Academy during the 18th century. Similar boxes were used at other academies. The voting member placed their hand in the hole at the side and dropped a ball, either in the white container for yes, or the black one for no. The box is no longer used, instead simple pieces of paper with a yes or no are placed in a metal basket.



Otherwise, new items are mainly reformulations and tightenings up, for example how library books must be labelled and catalogued.

The external organisation underwent more conspicuous changes during this period, which, as we have seen, could affect the internal organisation. One example is the Museum of Natural History, at which departments tended to multiply by division – something that had repercussions on the organisation of the Inspections Committee. The library also expanded significantly, despite being small enough for a single librarian to have a great impact on its activities, which included the exchange of publications with other learned societies.²⁸ The growth of the collections and the staff brought about practical problems, as the Academy, the museum and the library were housed under the same roof, a relationship that is examined more closely in the following chapter.

Also, additional activities were started. Through its physicist, the Academy of Sciences organised meteorological observations from the mid-19th century. When these expanded and were internationalised, the Academy applied for state funding. This was granted and, in 1872, the Central Meteorological Office was founded. It was placed under the supervision of the Academy and housed on its premises. Other activities were more delocalised. Another new institution under Academy supervision was Kristineberg Zoological Station, established in 1877 on Gullmarsfjorden in Bohuslän, on Sweden's west coast. Here, the institution-builder was Academy member and curator at the Museum of Natural History, Sven Lovén. He succeeded in mobilising resources through a private donation, upon which the Academy was able to gain state funding. During the 1830s, Lovén had participated in a research trip to Spitsbergen, which was a starting shot for the polar research that followed. In more modern parlance, we could say that these expeditions were temporary organisations in the form of projects, where the Academy watched over daring actors funded by both private donations and the King in Council. These heroic polar journeys drew a great deal of public attention towards the sciences. The 1896 donation from Alfred Nobel, who was a foreign member of the class for technical, economic and statistical knowledge, brought into being an institution with no physical expression. The King in Council promulgated the statutes of the Nobel Foundation in 1900; as the body responsible for two of the prizes, the Academy of Sciences established special Nobel committees for physics and for chemistry.²⁹

OUTSIDE THE ACADEMY, the scientific field was also experiencing change. The universities in Uppsala and Lund were expanding in various ways. During the 1860s, they had both begun to publish yearbooks for scholarly publication and, in the 1880s, both gained new and expensive university buildings. Stockholm University College, which focused on the natural sciences, was founded in 1878 and Gothenburg University College in 1891.

In 1877, the Technological Institute became the Royal Institute of Technology (KTH). Other institutions for specialist education, such as the Veterinary Institute, started to push for higher education that had research on the agenda. Science received increasing attention in Swedish society.³⁰

At the same time, the state began to be assigned greater economic and political responsibility on behalf of the nation. For example, the nationally traumatic dissolution of the union between Sweden and Norway in 1905 provided a boost for powers that wanted state investment in the education of engineers and veterinarians to strengthen the country's industry and agriculture in international competition. This transformation of public power was part of a general European tendency, which has been analysed in terms of organised capitalism.³¹

If we look beyond the nation's borders, we see that the Academy of Sciences responded to other movements of the time. One of these was the Scandinavian meetings for natural scientists, which began in 1839 and were held at varying intervals for almost a century. Using various arguments, there was lobbying for the natural sciences and for strengthening their influence in society. Another institution with which the Academy was involved was the International Association of Academies, founded in 1899.³²

From the turn of the century to the 1970s: from consolidation to crisis

So much had changed that entirely new statutes were established in 1904. They entailed considerable adjustments, contributing to the Academy's image as a royal office for science in the civil service, but no upheaval in the institutional order. These statutes came to be revised at a faster rate than previously, but were first replaced with new ones in 1974, so the intervening years form a separate period in our history. This period could also have ended in 1966, when the statutes underwent a relatively thorough revision. However, it is clear that the years around 1970 comprise a formative stage in the history of the Academy of Sciences.

The mission statement in the new statutes of 1904 articulates a defined task: "to promote the sciences, preferentially mathematics and natural science".³³ The Academy works towards this through "scientific institutions, through the publication of scholarly texts, through the awarding of support and rewards to deserving researchers and authors, and otherwise through funding available to the Academy for this purpose". The article also says that the Academy was founded on 2 June 1739 and that the Annual Meeting is held on the anniversary of the promulgation of the first statutes, 31 March. This corrected the mix-up that had been passed down through the 19th century revisions to the statutes.