

## *About the book* · JOHAN KÄRNFELT

### *Approach*

In recent decades, the concept of the knowledge society, or sometimes the information society, has gained ground in politics, public debate and academic research. Knowledge, research and innovation are often presented as the foremost drivers of society, and of culture in general. However, there is no dearth of critical perspectives that emphasise the elusiveness of the knowledge society as a phenomenon and the way the debate masks many complex issues surrounding democracy, expertise and influence.<sup>1</sup> But even if the term is contested, most of its interpretations have focused on a contemporary scenario. Instead, in this book we want to provide a historical elucidation of the knowledge society, and will do so by focusing on an organisation that has long played a central role in the formation of Swedish science and the development of our modern society: the Royal Swedish Academy of Sciences.

The starting points are found within a wide field of the history of knowledge, and we have found particular inspiration in the idea that knowledge is created when it is put into motion. Knowledge that is not used congeals and is eventually forgotten; it comes to life only when it circulates between different actors and contexts. Since its founding in 1739, one of the most important tasks of the Academy of Sciences has been to put knowledge into motion. Understood both as an organisation and as a collection of individual members, it has been very active in its contributions to the formation of scientific knowledge. Its institutions and members have gathered information and created new knowledge in laboratories, in observatories and in nature, sometimes on expeditions to distant lands. However, it is equally important that, for almost three centuries, the Academy has not only produced, but also collected, disseminated and popularised knowledge. Through publications, correspondence, meetings, medals and rewards, it has brought together a multitude of different actors – researchers, politicians, patrons, engineers, instrument makers and book printers, to name just a few – not

only in Sweden, but around the world. Knowledge has flowed through and been created in these wide-ranging networks. In addition, through a continual stream of consultation responses, statements and research policy measures, the Academy has worked to emphasise the value of knowledge and its use.

Doing historiographic justice to an organisation that is as complex and as old as the Academy of Sciences is not entirely easy. We will return to the state of research, but here it is enough to mention that the more ambitious attempts to write the history of the Academy have drawn a line in the early 19<sup>th</sup> century, when the chemist Jöns Jacob Berzelius took over as secretary. Of course, a great deal of research discussing aspects of the Academy's activities in the 19<sup>th</sup> and 20<sup>th</sup> centuries has also been published, but there is still a paucity of work that attempts to capture the organisation's almost 300-year history. *Knowledge in Motion* has the ambition of doing precisely that.

The approach we have chosen is, however, very different to that of previous contributions. We do intend to depict the history of the Academy from its founding to our own time, but we will not do so with the same richness of detail and comprehensiveness that are possible when limited to short time periods. Nor is this a solo project, but a collective work conducted as part of a research programme, Science and Modernization in Sweden. The programme has been financed by the Marianne and Marcus Wallenberg Foundation and is based at the Center for History of Sciences at the Academy of Sciences. Its overarching aim has been to utilise the broad expertise created in Swedish history of science over the last few decades to study the origin and development of the modern knowledge society. Initially, the participating researchers conducted individual projects, studying one or more aspects of this history and then, in the second half of the project, came together to share their work on this book.

The book has two separate sections, between which work has been allocated. The first section takes a bird's eye perspective on the Academy's history and offers an overview of its development, from the mid-18<sup>th</sup> century to the present day. The presentation focuses on the Academy as an institution and discusses, among other things, how its role has shifted and changed over the centuries. The second section goes in almost completely the opposite direction. In forty or so picture essays, the authors examine details and individual phenomena. The picture essays somewhat supplement the introductory historiography, but the idea is also that they highlight the physical and visual sides of knowledge formation. The sections can be said to have a productive tension in their relationship to each other, representing different ways of writing history: the bird's eye perspective in the first section draws the sweeping lines, drilling down in the second section to form a string of microhistories based on actors, details and life as it was lived.

Unifying the book is the history of knowledge perspective that has already been implied and which we will soon present in more detail. First, another basic premise for the project must be mentioned – the archive.

### *The archive*

A milestone in the story to be told here was reached in the middle of June 1739. Two weeks previously, six gentlemen with an interest in science and manufacturing had formed a group and, using a model from abroad, founded an academy of sciences. They were now to have their first regular meeting and, as an item on the agenda, one of the founders, Anders Johan von Höpken, took the floor. He donated a “Bureau” to the academy.<sup>2</sup> This may appear trivial, but the bureau was important – it was intended for the storage of the Academy’s “files and documents”. This piece of furniture thus became the Academy’s first archive. Just a few years later, the architect and temporary archivist Carl Johan Cronstedt complained that “the papers that should be in the Archive are already so worn, that he has been forced, to store some at his home, and to leave some at other places in the city, thus there is much disorder and unnecessary trouble derived from this, both for him and for the Archivist”.<sup>3</sup> The bureau was no longer adequate, so he asked for permission to order an archive cabinet that was fit for purpose, which was immediately granted. From these archive furnishings, and the practices to which they bear witness, there is an unbroken line to the now very extensive archive stored at the Center for History of Science. Without this, this book would not have been possible.

Neither the bureau nor the archive cabinet have been preserved. They were everyday objects and, as such, were disposed of at some point along the way. But the furnishings themselves are of lesser importance – what is important is the activity they represented.

The concept of an archive stems from Latin’s *archivum*, a storage space for public documents which, in turn, comes from Greek’s ἀρχεῖον, a court house or building for public authorities.<sup>4</sup> So, an archive is conceptually linked to power and public life. In a lecture that later talks about Freudian psychoanalysis, French philosopher Jacques Derrida discusses the power that was attached to Antique archives. These archives, containing official documents that were the result of the political process, were kept at the homes of those citizens who upheld political power. Derrida states that these officials were not only physically responsible for the documents, but that, in the power of their office, they also had the right to interpret and make the documents that were stored in the archives available to the public.<sup>5</sup>

Derrida’s analysis, often presented when archives are mentioned, can be applied to von Höpken’s bureau. Even if the Academy’s reputation in June



# Academiens Archivum.

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|-----|--|-----------------------|
| 1.  | Kongl. Majest original stadfästelse på grund reglorna.             |                       |
| 2.  | Fundatorernas fastsatte grund regler                               |                       |
| 3.  | Kongl. Majest. privilegium på handlingarnas tryckande tillika med. |                       |
| 4.  | H. Baron Hopkens transport och sup.                                |                       |
| 5.  | Boktryckaren Grefvings contract af den 25 Julii 1741.              |                       |
| 6.  | Detta contract förnyat den 9 Nov. 1744.                            |                       |
| 7.  | Matrikeln uppå Academiens Ledamöter.                               |                       |
| 8.  | Matrikeln uppå Academiens Amne Männer.                             |                       |
| 9.  | Förförings skrifter för 1739, 1740, 1741. _____                    | 1 band.               |
| 10. | Inträdes tal inskrifne _____                                       | 1 band.               |
|     | Originaler _____   | 1 Convolut.           |
| 11  | Original handlingar tryckte _____                                  |                       |
|     | — för 1739, 1740, 1741. _____                                      | 1 band.               |
|     | — för 1742 _____   | 1 band.               |
|     | — för 1743 _____   | 1 band.               |
|     | — för 1744 _____   | 1 band.               |
| 12. | Do tryckte _____   |                       |
|     | — för 1734, 1740, 1741. _____                                      | 1 band.               |
|     | — för 1742, 1743, 1744 _____                                       | 1 band.               |
| 13. | Angående Swenska Språket _____                                     | 1 Convol.             |
| 14. | Inskrifne bref.  |                       |
|     | — för åren 1739, 1740, 1741. _____                                 | 1 Convol.             |
|     | — för åren 1742, 1743, 1744. _____                                 | 1 Convol.             |
| 15. | Concepter.   |                       |
|     | — för 1734, 1740, 1741. _____                                      | 1 band.               |
|     | — för 1742, 1743, 1744. _____                                      | 1 band.               |
| 16. | Protocoller för 1739, 1740, 1741. _____                            | 3 <sup>ae</sup> band. |



1739 was far from given, it would eventually, not least through royal privileges, become an extremely important institution. Towards the end of the 18th century, the Academy became a more obvious authority in public life, thanks to the many beneficial findings printed in the Academy's various publications, the almanac monopoly and its increasingly prominent role as a royal consultation body. One expression of this authority was all the documentation generated by its activities – minutes, correspondence, statements and so on – and it was all this that was to be stored in the archive cabinets. The Academy's founders were apparently already aware that archives were essential, as the statutes of 1739 state that an archivist should be appointed.<sup>6</sup> Even if the Academy found it difficult to fill this post – from 1760 its tasks appeared to have been done by the secretary himself – it has symbolic importance.<sup>7</sup> The person who manages the archive not only has responsibility for keeping the documents in order, but also the power to make public, dispose of, give or prevent access to them.

Parallel to the establishment of this archival practice, another type of documentation began to pile up. The Academy laid the foundation of a library at its very beginning, and the librarian was responsible for book donations and purchasing interesting books, as well as for exchanging journals with other academies. But the library soon started receiving other types of donations: members gave away manuscripts, collections of letters and similar items. This saw the creation of an archival practice that was not managed from the secretary's office, activity that was less concerned with keeping everything in order than it was with preserving items for posterity.

Both these archival practices have lived on into our own day and age; since 1988 they have been organised within one of the Academy's institutions, the Center for History of Science.<sup>8</sup> The institution conducts its own research, but its primary task is to manage the Academy's now very extensive archive. Here, alongside the Academy's official archive, there are numerous archives for people and organisations, of which most are in some way linked to the organisation's history. There are also three archives from the Nobel committees, as well as an extensive collection of instruments and objects.

Knowledge in the history of science is created in the meeting between researchers and the sources used in research. Frequently, these sources are archive materials. But nothing in the archive is obvious; there is no history in the shelves that one can simply flick through and write down.<sup>9</sup> It is only through specific research questions and, of course, the researcher's skills,

**THE FIRST ARCHIVE AT THE ACADEMY** was not large; it could be housed in a cabinet. The cabinet no longer exists, but the first register for the archive does. This was drawn up in 1745 under the supervision of the secretary, Pehr Elvius.



knowledge and experience, that multitude of singularities in the archive can begin to speak. This is where some of the power spoken of by Derrida lies. But the archive also gives rise to another means of exercising power: that which is maintained by archivists and can be expressed in traditions for preservation.

The awarding of the first Nobel Prize, in 1901, is a good example. From the beginning it was taken for granted that documentation around this prize should be classified, that no external parties should be able to access it. This remained the case for a long period of time. However, this practice was adjusted in the 1970s to, as it says in the statutes of the Nobel Foundation, enable historical research. A fifty-year embargo was introduced for all Nobel documentation.<sup>10</sup> This means that no matter how cleverly the researchers formulate their research questions, they cannot access more recent material. The archive is silent. At the time of writing, the line has been drawn at 1968. Even if the Nobel Archive is somewhat special, there are similar embargoes in some personal archives, governed by agreements drawn up when the documents were submitted to the archive.

So, if the archive enables historical research, various archival traditions can also limit it. Another, perhaps more important example of this, is all the decisions that have at some time determined what should be placed in the archive. As a private organisation, to which the principle of public access to official records does not apply, the Academy – in practice its secretary and archivists – have been able to decide what should be saved and the extent to which it should be made publicly available. A great deal has been collected in this way, but this has not prevented some types of material being perceived as less important and thus winnowed out.

As a researcher, one is forced to deal with the results of all this, to navigate between what has been preserved and what is missing, and to try to formulate research questions that can be answered by the archive. A great deal of the archive material used in our project has been examined numerous times in history of science research, but some material has lain untouched since it was deposited there, particularly the material used for the book's picture essays. We hope that the richness that is hidden in the archive can be done justice, to some extent, and that its presentation not only offers what is typical and expected of the genre, but also something surprising.

But the archive is not only a resource for the research we conducted, it is also an integrated part of the knowledge processes that interest us. The formation of knowledge results in documentation in many forms and in many stages. Researchers write laboratory records and travel diaries, they photograph, sketch and collect, they amass various forms of data, they draft lectures and publications, they correspond with colleagues, authorities and individuals. Some of this is archived at the office for further use in their work and,

over time, much of it finds its way into the research archive. Other actors, participating in some of all the flows in which knowledge is communicated, recreated and used, similarly give rise to documentation, which can also find a place in the archive. For our descendants, the archive can therefore, and in an essential way, be described as the long-term memory of the knowledge society.

### *The history of knowledge*

In an influential article published in the history of science journal *Isis*, in 2004, James Secord attempts to formulate the starting points for a new way of writing history. He believes that, in recent decades, research in the history of science has been occupied with analyses that problematise the formation of knowledge in relation to local contexts, and that we must now expand our vision. Knowledge is gained, he states, not because it is true or through the individual efforts of various knowledge producers, but because it is put into motion and circulates between different contexts.<sup>11</sup>

In one way, this is obviously true. Knowledge is intersubjective. In 1828, when Berzelius received a mineral that was difficult to analyse, so discovering a new element in his laboratory – thorium – this knowledge was not created through the discovery as such, if it is even possible to point out exactly when this occurred.<sup>12</sup> Data from the laboratory must be analysed, packaged, distributed, discussed and verified before it comes to rest, becomes knowledge for professional chemists of the time, at least temporarily. New analyses, interpretations or discoveries may, at a later stage, require renegotiations. Other flows become apparent if the perspective is widened: the priest who found a black mineral in Telemark in Norway, first gave it to his father, mineralogist and geologist at the university in Kristiania. However, his analysis was fruitless and he forwarded the mineral to Berzelius. This movement, and the networks in which it takes place, is part of the knowledge process. We see more movement at the other end of this episode. The discovery is mentioned in journals, it appears in works of popular science, eventually also in textbooks. More people learn something about thorium. Knowledge does not exist in itself, but is created by its circulation among people.

From the perspective of the history of science, the concept of circulation has consequences. The most important of these is that more actors become visible in the process of knowledge formation. The traditional diffusion model with producers, disseminators and consumers of knowledge must make way for a more complicated landscape of interactions between many different actors, which may be spread out organisationally, geographically or socially.<sup>13</sup> With these distances, the forms of communication become important in themselves. Scientific publications are simply *one* channel for interaction

regarding scientific things. Correspondence, manuals, directives from authorities, popular science articles, sketches and expeditions are a handful of examples of the myriad phenomena that can convey knowledge from one actor to another. Also, the communication itself, whatever form it takes, always includes some type of interpretation and adaptation – or medialisation, to use a more technical term – and this is an essential part of knowledge formation.<sup>14</sup> As stated, knowledge does not exist in itself, but is always expressed or maintained by someone, through some medium, and in some context.

Even if historians of many different shades have long been interested in the conditions of knowledge, a more organised history of knowledge is a relatively new phenomenon. The ongoing debate about the “knowledge society” and “information society”, has provided impulses for historical studies that have chosen to historicise claims and demonstrate historical predecessors.<sup>15</sup> The history of knowledge as an academic field has grown by weaving together perspectives from various historical disciplines.<sup>16</sup> To begin with, historians of science have long worked with the insight that it is not unproblematic to apply the Swedish concept of *vetenskap* and, to an even greater extent, the English one of *science*, to phenomena prior to the mid-19<sup>th</sup> century. In studies that span several centuries – such as this one – the concept of knowledge has a considerably greater reach and can, unlike the concept of science, include work on the beneficial findings that were so important to the young Academy of Sciences, for example.<sup>17</sup> The formation of knowledge has also come into focus because, in recent decades, historians have become increasingly interested in science in popular culture, as well as in its role in global events that reshape our planet.<sup>18</sup>

This development has encountered a parallel expansion of book history research. Here, a traditional interest in the economic sides of the book industry has broadened to include the cultural history of the book and its role in disseminating knowledge.<sup>19</sup> In this context too, focus has been placed on the circulation of knowledge, which are now intertwined with the material conditions of these flows.

**COLLECTIONS AND ARCHIVES** at the Center for History of Science encompass everything from different types of material originating in research processes to scientists’ most private possessions. When selecting pictures for this book, our aim was to reflect this diversity in some way. The pictures to the right show two types of container that are found in the Berzelius collections: test tubes containing thorium, one of the elements discovered by Berzelius, and a condom made from animal intestines that was included in a letter to his friend Palmstedt.





Interest in the history of knowledge has perhaps moved furthest within the German-speaking tradition in which *Wissensgeschichte* is now an established academic field, with programmes, professorships, and environments for research and education.<sup>20</sup> The idea of knowledge in motion, like the concept of circulation, recurs here, but the power perspective is more prominent. Just as knowledge is always expressed through different entities, it is always part of systems of power that provide societal legitimacy but also entail a multitude of inclusions and exclusions. The very open view of knowledge that characterises the young Academy of Sciences, for example, and which in principle recognised every soberly thinking citizen as a potential producer of knowledge, is radically different to the view that became established a century later, in which only scientific experts were heard. The power structures in which knowledge is ordered, or expressed, are thus decisive but also historically changeable.

### *Format*

In our work with this book we have been inspired by the idea of the circulation of knowledge and, more generally, the perspective of the history of knowledge. In extension, we have chosen to regard the Academy of Sciences as a knowledge organisation that has brought together a multitude of actors over the course of almost three centuries, both nationally and internationally, with the overarching aim of not only creating knowledge, but also collecting it and putting it in motion.<sup>21</sup> One consequence of this is that we have shown less interest in the research conducted as part of the Academy over this period, and more in the structures that have maintained it.

The book's introductory section, authored by Henrik Björck and Thomas Kaiserfeld, aims to depict the Academy's history, from its founding in the mid-18<sup>th</sup> century to our own time. The chronologically ordered chapters have a common format but different main authors.<sup>22</sup> The focus is on how the Academy, as an institution, has organised its activities and how it has slowly changed in parallel with societal development. This analysis is borne by the slow reactions characteristic of organisations of this type, a slowness that can sometimes obstruct the free formation of knowledge, but which also enables it by providing stability in organisational structures and means of communication. Given the Academy of Sciences' long history, its centrality to Swedish public life and its role as a knowledge organisation, the analysis also provides an image of how the knowledge society has developed and changed over the centuries.

The second part of the book has about forty picture essays, written by members of the research programme. The pictures that serve as the starting point of the essays have not been chosen primarily because they are visually

striking, but rather because they have something interesting to say about the conditions in which knowledge was formed. As far as possible, we have tried to vary the pictures – the essays are based on photographs, paintings, maps, diagrams, portraits, objects, et cetera, most of which are from the collections of the Academy. The accompanying texts illuminate a particular aspect of what is depicted, while also providing a link to the theme of the history of knowledge. To bring some measure of organisation, the essays are ordered under four headings – Circulation and medialisiation, Practices and materialities, Regimes of knowledge, and The art of remembering – and each section begins with a short introduction.

The book concludes with an epilogue authored by Sven Widmalm, in which, in the light of what has gone before, he lifts his gaze and says something more general about the place of the Academy of Sciences in the history of the knowledge society. To facilitate reading, there is an appendix, compiled by the staff at the Center for History of Science, which gathers information of a more general nature about the Academy of Sciences. For example, it includes secretary registers and lists of the Academy's many institutions.

And, with this said, let us turn to history, the summer of 1739 to be precise.