

6 | *The Academy of Sciences as the spider in the web* 1904–1969

In his report to the Annual Meeting on 31 March 1914, Academy Secretary Christopher Aurivillius, entomologist and curator of the Swedish Museum of Natural History, explained that the upcoming move to Frescati marked the end of a period in the history of the Academy of Sciences. This period had started in 1829, with the move to the building on Drottninggatan that was a result of a new mission and new management. The secretary illustrated how the Academy's activities and institutions had grown during this period by contrasting "then" with "now" in various areas. A few examples from the field of printed matter provide an illustration. Publication activities then covered more than 40 printed sheets, now that number was 300; in 1851 texts were exchanged with 69 institutions, in 1913 that number was almost 1,000. In 1830, the library had around 300 new acquisitions annually, at the start of the 1910s, this was almost 16,000; then the library had a registered value of 46,000 kronor, now this exceeded a million.¹

New university statutes came two years later. The mission statement had the imposingly brief wording: "The mission of the universities is research and education."² Humboldtian ideas about the task of the academic had influenced the state-run universities and were eventually passed as legislation. These notions also spread to the specialised colleges of higher learning, which were influenced by them at the same time as they, with their applied sciences, came to influence the academic conceptual sphere. In higher education, this development parallels that of the academisation of the Academy of Sciences seen in the previous chapter, a process that, in turn, is not unique to Sweden. For example, among academies internationally, the Royal Society revised its rules for election in 1847, advantaging professional scientists and changing the character of the institution. By 1900, it appeared to be an exclusive society for members of the scientific elite who were one of the pillars of society.³



FIELD EQUIPMENT FOR AN ENTOMOLOGIST. This may have been used by Christopher Aurivillius, who was director at the Swedish Museum of Natural History and permanent secretary of the Academy of Sciences for a number of years.

Science had a new societal role. In research, nations were elements of an international order of competition and collegiality, rivalry and brotherhood, which captured and managed tensions in turn-of-the-century Europe. International cooperation was often enacted to win national advantage. The Academy of Sciences was part of this order, and strived to maintain it. But the world was recast. Empires fell, democracies arose. These transformations were not least due to the world wars, which demonstrated what could be achieved with the help of science. Research became tangibly relevant to society, and of greater political interest.

This chapter starts in the early 20th century, which brought more new circumstances for the Academy of Sciences than the task of awarding Nobel prizes. For example, there was a generational shift among its officials. Between 1901 and 1905, six of the eight curators of the Museum of Natural History were replaced, as well as the librarian and the secretary – Aurivillius' prede-

cessor, the astronomer Georg Lindhagen, had resigned in 1901 at the age of 82, with retained pay and after 35 years in the job.⁴

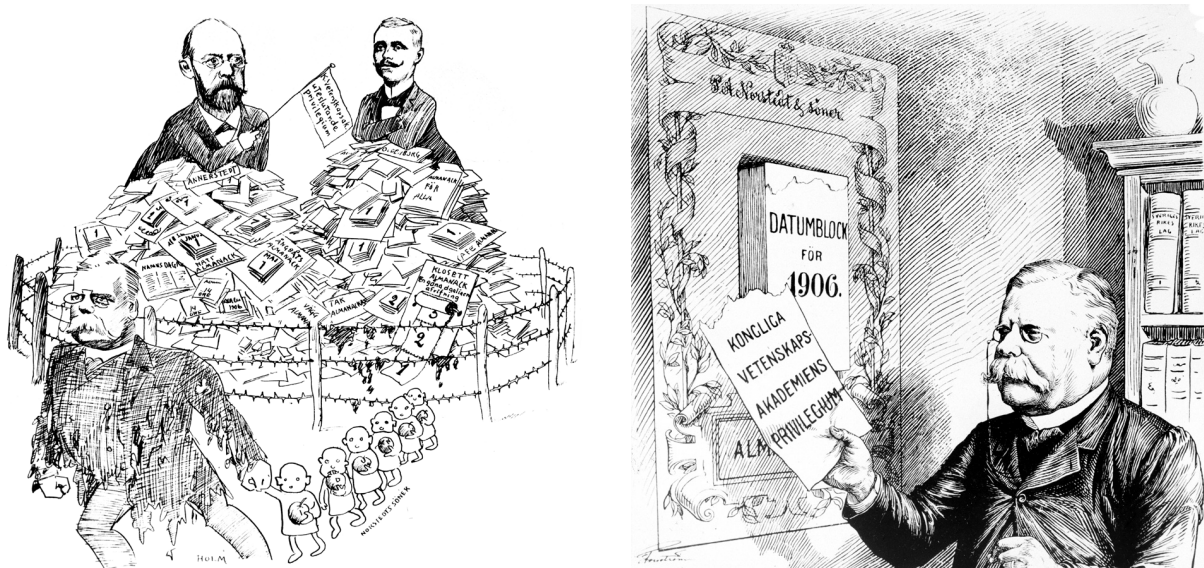
Examples of the Academy's activities provide the starting points in the following account, which is organised chronologically to elucidate change within a relatively stable institutional order. It ends in the 1960s, when established structures began to dissolve. In this chapter we will follow how the Academy related to and tried to manage the comprehensive transformations in science and politics that occurred in this period.

New and old, activities and working modes

The statutes of 1904 gave physics and chemistry a greater specific weight, which was linked to the Nobel prizes. Even if much of the existing organisation remained unchanged, there were major and minor things to discuss in association with revisions to the statutes. For example, some members wanted to change the focus of meetings and limit them to three hours: “Over many years, as you know, meetings of the Academy have dealt with increasing numbers of essentially practical, non-scientific matters, to the extent that very little time has been left for scientific presentations and exchange.”⁵ Some actors felt that the burden of official administration overshadowed the primary task.

A few years later, the rules of procedure were revised, including new instructions for the management of all publications. This was associated with the decision to modernise publication activities, as the organisation established by Berzelius had come to be regarded as unwieldy and too slow for modern science. The *Vetenskapsakademiens handlingar* [Transactions] remained for the publication of “theses” but, on the basis of scientific specialisation, the *Bihang* [Appendices] were replaced by four new *Arkiv* [Archives] for the speedier publication of smaller studies in *chemistry, mineralogy and geology*, in *mathematics, astronomy and physics* and in *zoology and botany*. The overview was replaced by an *Årsbok* [Yearbook], first published in 1903. *Meteorologiska iakttagelser* [Meteorological Observations] and some other texts were published as before.⁶

THE MATERIAL FRAMEWORK for the activities of the Academy of Sciences was also the subject of decision-making, such as leasing out the privilege on the production of almanacs. P. A. Norstedt & Söner had long managed the printing and had acquired advantageous terms for the ten-year period of 1896–1905, due to the Academy not asking for other bids. For the 1906–1915 period, the situation was different; after quickly buying up a printer that could be a competitor, Norstedts placed its bid. This came to be perceived as a scandalous offer and more beneficial tenders were made. A bid was placed by Almqvist & Wiksell in Uppsala and, after some discussion, the Academy



RENEWING THE CONTRACT for almanac printing, depicted by caricaturist Oskar Andersson, signature OA. The man with the impressive moustache is the director of Norstedts, Gustaf Holm, and the two others, Claes Annerstedt and John Oldenburg, represent Almqvist & Wiksell, which clinched the deal with a better offer to the Academy of Sciences.

voted for it. As a driven businessman, the head of Norstedts tried to use threats as well as persuasion to push matters further.⁷

The controversy and its intrigues were covered by the press. One liberal newspaper stated that the monopoly was “a serious anomaly in our free society” and should be broken up.⁸ It was revealed that the head of Norstedts had an opponent in Academy member Gösta Mittag-Leffler, who also had a nose for business. He had, for a low price, bought the major shareholding in the printer that was a potential competitor, before selling it to Norstedts at a higher price. Mittag-Leffler was also responsible for a consortium that governed Almqvist & Wiksell’s actions in the matter. He could celebrate significantly improving the Academy’s finances while expanding his own fortune, which eventually formed the basis of the mathematics foundation established by the Mittag-Lefflers.

Even if the Academy got a beneficial deal, the circumstances were questionable. In the 1915 Riksdag, a Social-Democratic pastor wanted to investigate ending the almanac privilege. One argument was that the state should not dispose of a major source of income that could counteract tax increases. Another was more a principle; income-generating state monopolies without

state control entailed opportunities when awarding positions, for example, and it was known that the Academy had fallen for the temptation to use them. “On repeated occasions, issues of promotion within the Academy have been decided using extremely arbitrary and peculiar principles, which also recently resulted in almost unanimous criticism of the Academy.” It would be better for the Academy, like other equivalent institutions, to receive the necessary funding via the state budget. However, the Riksdag committee that assessed the motion stated that the King in Council had granted the privilege for the period 1912–1932 back in 1910.⁹

CONSTRUCTION ISSUES were also a part of the framework for activities. As we have seen in a previous chapter, the collections of the Museum of Natural History had expanded in ways that made the cramped circumstances of the building on Drottninggatan increasingly troublesome. This was complicated by sharing these premises with the Academy which, unlike the museum, was not a state institution.

The issue was investigated and debated. Almost all the curators advocated relocating to Frescati, where the Bergius Botanic Garden had already moved. They maintained that this would create better conditions for scientific research. The curator of the new ethnography department instead emphasised relations with the public, which would worsen through a move to the countryside. Negotiations were complicated by the institution’s dependence on both the state and the city, the continued expansion of which was the subject of ongoing renegotiation. This process was further complicated by Djurgården formally being a crown park under the king’s “sole disposal”, but Oscar II had favoured science and culture when the park was taken into use. After much discussion, in 1904, the Riksdag decided on a move that was partially financed by selling the property on Drottninggatan. The museum’s imposing new building in Frescati was inaugurated in 1916.¹⁰

Another, interlinked, aspect of the building issue was that any new premises planned for the Academy should be located close to the Museum of Natural History. They should also be representative of the gravity of its new Nobel commitments. The building plans continued to be investigated and discussed. The library was at their heart as, after the Museum of Natural History, this was the institution in the external organisation that required the most space. The emphasis was on the library’s importance for present and future scientific institutions in Frescati. In 1909, the Riksdag made a decision on the land and concession terms and conditions. The new building was inaugurated in 1915, in the presence of the patron of the Academy, King Gustaf V.¹¹

A third aspect of the building issue was the Nobel Institute for Physical Chemistry, which was discussed in the previous chapter. The form of the Nobel organisation had not yet stabilised, and one idea was to establish

special Nobel institutes as a service to the awarding institutions. The first to do so was the Swedish Academy – its Nobel Institute was founded in 1901, but was less successful than the Nobel Library that was founded at the same time. Towards the end of the 1910s, plans for a Nobel institute were developed at the Caroline Medico-Chirurgical Institute, either in race biology and heredity research or in experimental physiology and pathology, but they did not lead to any concrete results. The Nobel Foundation itself also had a construction issue. This led to the 1911 proposal from architect Ferdinand Boberg for a Nobel palace at the end of Strandvägen, with a hall that could seat 2,000 for award ceremonies. These plans also ran into the sand.¹² It was unclear why the Nobel organisation actually needed premises and what purpose the Nobel institutes would fulfil.

Some activities at Drottninggatan were never transferred to Frescati. The problem with premises for the ethnography department of the Museum of Natural History became chronic. After provisional solutions, in 1930 the Riksdag decided upon new premises in former barracks in the north of Djurgården. Five years later, the Swedish Museum of Ethnography became an autonomous unit, although subject to the “care and insight” of the Academy of Sciences.¹³ The Central Meteorological Office also suffered property problems as it tried to fulfil growing expectations for weather services. A proposal for a merger with the National Hydrographic Office, which had been founded in 1908, was sent for consultation. Opinion differed within the Academy on whether this would benefit science; the decision was that further investigation was necessary. The Riksdag came to a different conclusion and, in 1918, it decided to establish the State Department for Meteorology and Hydrology under the Ministry of Agriculture.¹⁴

The fate of the Institute of Physics is a story all of its own. Its activities had been conducted by the Academy physicist since 1888, Bernhard Hasselberg, but declined as the Nobel Institute expanded. It was also affected by various mishaps. The Thamic lectures were cancelled from 1905 and, the following year, the institution’s unparalleled instrument maker died.¹⁵ When the Academy moved out to Frescati, Hasselberg remained in the building on Drottninggatan. His new neighbours turned out to be troublesome.¹⁶

The neighbouring premises of the building, which previously belonged to the Museum’s zoology department, have namely, since the spring, housed a sewing factory for the Landstorm, where a collection of, I am told, around 100 sewing machines with electric motors not only cause a greatly disruptive noise, for 10 hours every day, but also cause such vibration in the walls and floors of the institution that any precise work is impossible.

A lack of money meant that plans for a pavilion specifically for the Institute of Physics in Frescati were not realised, so Hasselberg, who had eye problems,



THE WHALE MUSEUM was part of the Museum of Natural History. Using targeted state funding, the relocation of this section could begin as early as 1908, but it took time. The beaked whale in the picture moved to the museum in Frescati in 1914.

had to struggle on in increasing difficulty. After the state terminated the rental contract in 1918, his conclusion was clear: “The institute can thus now be said to exist no more”.¹⁷ The collection of instruments was warehoused in the entomology department of the Museum of Natural History.

The institutions in the even more external organisation had their problems with premises, which were perceived as being of local rather than national concern. The research stations in Kristineberg and Abisko had been established using donations and continued to expand with the help of donations from individuals, but also with funding from renowned organisations, such as the Lars Hierta Memorial Foundation.¹⁸

THE NOBEL WORK was a novel commitment in the partially new framework, which appeared to bring opportunities for institution-building. A Nobel institute remained an attractive vision. The Nobel prizes brought publicity, with the award ceremonies becoming media events at which established and rising members of the elite could show each other respect. King Oscar II had a stage on which he could prove himself to be a benefactor of science and culture. At the same time, the presence of His Majesty added glamour to the event and the royal state bureaucracy. University professors were supporting pillars of this order, as they represented the cultivators and guardians of true science and erudition. From other perspectives, the ceremonies could be perceived as an ostentatious element of the era of pomp and circumstance.¹⁹

Not least, the prizes entailed complicated and specialised work to appoint the laureates. Even if the allocation of awards was something of an academic speciality, the Nobel prizes were in a new division and had heightened international exposure. There were no obvious institutional solutions to adopt, but the organisation of Nobel committees with three to five experts was probably influenced by the Swedish use of expert panels when assessing applicants for academic positions.²⁰ The committees were to evaluate the nominees. As there were often few nominations, they did not provide much guidance and the committee members had to make their own assessments. Each new round contributed to stabilising the process for the subsequent year, and eventually a consensus decision became standard practice, making it more difficult to question the committees' expert proposals at a later stage. This did not mean that a committee's chosen candidate was automatically accepted by the class. Also, other candidates could arise when the Academy took the final decision in plenum.

Historian of science Robert Marc Friedman has demonstrated that a procedure such as this made it easy for the choice between qualified candidates to not only be conditional on their research merits, but also on internal negotiations during the decision-making process. The processes were conducted behind closed doors, within a narrow circle of people who could be bound to each other by loyalty as well as by rivalry. The Academy was criss-crossed by various opposing positions – between shifting scientific ideals, between Uppsala and Stockholm, between resource-rich actors, such as Svante Arrhenius and Gösta Mittag-Leffler.²¹ Tactical considerations and the committees' striving for consensus could cause results, such as compromise candidates, that bewildered external experts who knew whom they had nominated. These showdowns between factions and interests could also lead to surprising results.

One example is the 1912 Nobel Prize in Physics, which went to Gustaf Dalén, well-known industrialist and engineer, trained at the Chalmers Technical School. He had been nominated by just one person – an influential industrialist in the class for economic, statistical and social sciences – and was



THE NOBEL PRIZE AS A FILM. A poster for the American film *The Prize* (1963). Paul Newman played a Nobel laureate in literature who, at the prize ceremony in Stockholm, discovers that the physics laureate is an imposter.

rejected in discussions by both the committee and the class for physics. That kind of appreciation of applied science, and of whom had “conferred the greatest benefit to humankind”, was not appreciated in the class for technical sciences. At the decision-making meeting of the Academy, the engineers succeeded in mobilising a majority for Dalén, who had recently lost his sight in an accident.²² He was elected to the Academy the following year.

With Dalén, Sweden had laureates in all the Nobel categories. After Arrhenius’ Nobel Prize in Chemistry in 1903, the 1908 Peace Prize went to Klas Pontus Arnoldson – founder of the Swedish Peace and Arbitration Society. The 1909 Prize in Literature went to Selma Lagerlöf, and the Prize in

Physiology or Medicine went to Academy member Allvar Gullstrand in 1911. He was an *extraordinaire professor* but, in 1913, received a personal research professorship. A Nobel Prize brought prestige that could be exchanged for other things.



ESSAY

*Red water lilies
and other natural
monuments*

p. 549–555

MATTERS OF NATURE CONSERVATION were also new in the early 20th century.²³ Yellowstone National Park was established in 1872 to protect nature from culture, which seemed to put everything pristine to waste. At the same time, this institutional innovation made the wilderness accessible to tourists and researchers. The early American movement for the protection of nature encompassed a tension between different motivations and purposes. Those who advocated *preservation* wanted nature to remain in a type of original state and to protect it from the advances of civilisation. Those who advocated *conservation* wanted to protect nature through a wise use of resources, so making it available to future generations. The national park model was adopted in other countries, for example in Sweden by Adolf Erik Nordenskiöld in 1880. Early advocates for nature conservation were a mixed group of people with differing interests: forest owners and hunters, natural historians, tourists and nature-loving Romantics.

The issue of nature conservation became, like many other “issues”, a political matter at the turn of the century, as expectations grew that the state, in the interest of the nation, would put right increasing numbers of wrongs. In 1904, a motion was presented to the Riksdag for an inquiry into measures to protect Swedish nature and natural monuments. Arguments relating to aspects of science and aesthetics, as well as to the practical interests of forestry, were made using comparisons to recent developments in other civilised countries. In an appendix, the motion was supported by a number of professors, including the secretary of the Academy of Sciences. The Riksdag stated that the issue was entirely new but approved the motion, even if there was opposition to interference in the right to free use of private property.

The Academy was tasked with the inquiry and appointed a committee of five professors, including Einar Lönnberg, nature conservation advocate and curator at the department for mammals of the Museum of Natural History. The committee presented concrete suggestions, including an ambitious list of desirable national parks. Practical work could be managed within the normal framework of various public authorities, so administration costs need not be a stumbling block. The only body that was considered to need more resources was the Academy, which was to be responsible for expert assessments. The Swedish Forest Service was positive, but felt it lacked knowledge for the tasks it had been assigned.

After some hesitation, the King in Council appointed its own committee, consisting of the originator of the motion, Lönnberg and a lawyer who

worked for the Swedish Touring Association. They presented more elaborate proposals, including national parks on crown land in northern Sweden; these had no financial interest but did have a potential for tourism. To keep costs down, no expanded administration was proposed. Instead, in practice, tasks would mostly be managed by the Academy of Sciences and the Museum of Natural History, for a small sum. The committee drew an analogy with the legislation on the nation's cultural monuments and the responsibility of the Academy of Letters, History and Antiquities to protect them. Finally, in 1909, the Riksdag approved legislation on national parks and the protection of natural monuments.

The Committee for the Protection of Nature was then established at the Academy, with issues of nature conservation becoming a recurring item at meetings. These discussions could involve national parks and their management, or potential international cooperation, but deliberations mainly dealt with concrete issues, such as whether the Swedish Touring Association should be granted an exemption for extending a jetty in Abisko National Park. One assessment that caused nature-lovers to criticise the Academy was when, referencing financial interests, it approved the building of a dam that would significantly encroach on Stora Sjöfallet National Park. Most of all, its work involved assessing applications for the protection of natural monuments, such as when it approved a proposal from author, nature-lover and heritage enthusiast Karl-Erik Forsslund, to protect “a snake branch spruce in Skörsjö in the parish of Stora Tuna, an erratic block in Hulån, Dala-Järna, an ‘umbrella pine’ in Västankvik in the parish of Leksand, a hollow pine in the village of Sörbo, Utombro, in the parish of St. Tuna, and a ‘fairy pine’ in Sunnansjö in the parish of Grangärde”.²⁴ These types of cases were something that the Academy regularly decided upon during its meetings which, a century later, can appear strange.

THE GENERAL MEETINGS were filled with much more – around 30 members, to begin with, never less than 20, only in exceptional cases over 40. Meetings often started with notices about Swedish and foreign members who had “through death resigned”. Some people received special honours, such as Oscar II, who received a wreath with a blue and yellow ribbon with the wording: “The patron of the Academy and science’s friend upon the throne”.²⁵ Birthdays were also celebrated in the form of jubilees. The Academy participated in exchanges that built relationships and maintained a memory culture. So, in 1907, invitations were sent out to a Linnaeus celebration and, a little later, representatives were appointed to honour 250 years of the Royal Society, and the centenaries of the Academy of Agriculture and Friedrich Wilhelm University in Berlin, as well as the 400th anniversary of the University of Aberdeen. International relations between institutions often built



ESSAY
A Linnaean triptych
p. 600–617



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Swedenborg's return
p. 582–587

upon this type of exchange of gifts, which also recurs in the network of relationships entailed by the exchange of publications.

Questions about an official Swedish representative in these contexts were often received as consultation papers from the King in Council. Another common consultation regarded applications for travel grants to international conferences. An Academy member could request a grant from the King in Council, who forwarded it to the Academy, who approved the grant. This process made it somewhat ambiguous whether the member then represented Sweden or the Academy of Sciences, his university or himself. There were also more unusual consultations, such as on the repatriation of Swedenborg's remains, and more comprehensive ones, such as a proposal from the state wage regulation committee for new salary and pension conditions for officials at the Museum of Natural History; the role of employer accompanied the authority-like role. In plenum, the Academy granted the officials annual leave.

Another frequent matter was the election of people to various positions, committees and boards. Periods of office were regulated but, in general, people who were in line to step down were re-elected unless they asked not to be. The committees could then suggest decisions on all the prizes, stipends and grants the Academy awarded. In turn, this often resulted in having to register reports from the recipients.

Lectures and presentations given by the members were another recurring item at the meetings. For example, in 1906 a medic lectured “on tuberculosis and overcrowding in Stockholm, and on the social wrongs that promote the spread of tuberculosis”, and a geodesist reported “on the circumstances seen by him as Sweden's representative at the fifteenth international geodesy conference in Budapest”.²⁶ Einar Lönnberg was a regular speaker and happily presented gifts that were more or less *curiosa* to the Museum of Natural History. “He also described a peculiar deformity in an elk that was shot in the autumn of 1911 at Lindormsnäs, of which the head and some preparations were donated by squire *Henric Tamm*. The elk was shown to be a pseudo-hermaphrodite with hypospadias.”²⁷

MAKING A DEATH MASK had a long tradition among people who could afford it but, as photographic technology increased in popularity, more people chose to take mourning portraits instead. Upper picture: Death mask of Gustaf Retzius on his death in 1919. Lower picture: Retzius lying in state at home in Spökslottet, on Observatoriekullen. His wife, Anna Hierta Retzius, was anxious to preserve the memory of her husband and, on his fiftieth birthday, had already had parts of his scientific correspondence bound in 35 gilded volumes. The Academy was not only bequeathed archive material and the objects shown here, but also her husband's christening gown.



Various types of information were announced at general meetings, such as decisions by the King in Council and new donations, as well as reports of papers that had been accepted for publication. Growing scientific productivity came at a cost and, by 1914, printing everything approved by the reviewers proved impossible.

Nobel matters were dealt with separately, though in association with general meetings, and were recorded in different minutes. There were often few items to be discussed, but things could get heated when the laureates were decided. These meetings often attracted twice as many participants as the normal Wednesday meetings, which were in principle held every fortnight during term-time.

The Annual Meetings were a thing apart. One or more of the royal honorary members often attended, as did reporting journalists. Major prizes were awarded with great ceremony, not seldom to the Academy's own members. For example, in 1912, the renowned members Gustaf Retzius, anatomist and anthropologist, and Alfred Gabriel Nathorst, polar researcher and palaeobotanist, were honoured. A third prize – with the motto “On a scientific foundation for the benefit of society” – went to economist David Davidson, who became a member in 1920. The president explained that economic issues had initially been important to the Academy, which had also had classes for agriculture, and trade and civil industry.²⁸

Since these subjects have, to some extent, their own representative institutions and authorities, our Academy has increasingly left aside the application of the sciences in order to concentrate its mission on science as such. Nevertheless, she embraces the representatives of fields of knowledge, which stand alongside those that are her true sphere of action[.]

Subsequently, there was a eulogy for a deceased member, librarian Elof Tegnér, for whom a memorial coin had been struck. The secretary read out his annual report. Nathorst gave a lecture on “unusual preservation states for fossil plants”. A further two lectures had been prepared, but had to be cancelled due to “the late hour”.

War and peace, money and politics

The war became the Great War, which became a world war – but regardless of the name, the conflict that began in 1914 changed almost everything. Germany's invasion of neutral Belgium aroused indignation, but in an appeal in a newspaper in October, 93 German scholars declared that the country's aggression was justified. This patriotic outburst was followed by accusations and counter-accusations that widened divides and led to the dissolution of

the established international orders of science, for example institutions such as the International Association of Academies.²⁹

The unfolding of events also affected the Academy of Sciences. The war, which was assumed to be a short affair, meant it was not possible to acquire the Brussels carpet that was intended for the new Session Hall. Planned journeys and congresses were delayed, first until 1915, and then for an indefinite period, to finally run into the sand. Difficulties were reported by institution directors, such as Arrhenius: “The great war that now rages has, in the latter part of the year, hounded almost all foreign researchers from the institute. One consequence of this is also that scientific productivity has been considerably reduced from the previous working year.”³⁰ Supply problems became serious in 1917 – when riots suggested that revolution could be the alternative to the introduction of general suffrage – and officials at the Museum of Natural History were given permission to grow potatoes outside the museum.³¹ The war seemed never-ending.

Meanwhile, everyday life continued, with all the matters and issues that the Academy had to deal with. A negative imprint, so to speak, of this was a document from 1916. Seven dedicated members felt that all the official duties had squeezed out the primary task, “being a body for conducting scientific inquiry and the disseminating beneficial knowledge”.³² They therefore wanted to investigate the possibility of changing this order. After discussion, the Advisory Committee did not want to recommend comprehensive reform, instead suggesting that minutes and documents should be referenced rather than read out in their entirety, and that presentations should be comprehensible to non-specialists and no longer than 30 minutes.

At the next meeting, professor of medicine Salomon Henschen made a speech. He felt that administrative matters had caused the Academy to “transition to a bureaucratic focus, almost forgetful of its mission to promote science”. Several reasons had contributed to meetings becoming stereotypical and sterile. One was the rule that meant that activities were managed by committees “that have almost assumed the form of a permanent bureau of members elected for life. To be sure, re-elections should occur, but experience has shown that the same members are continually re-elected.” Another reason was the fact that almost half of the members had retired, which meant that they did not have access to laboratories or other facilities in order to keep up with contemporary science. Fossilised forms needed to be broken up. One of Henschen’s suggestions was that administrative matters should be transferred to newer state institutions with adequate knowledge for their tasks. The Museum of Natural History needed to be refurbished to make it a research institution, one not so specialised in natural history systematics but more in modern biology, in the form of physiological investigations with a comparative-anatomical focus. Rejuvenation was also necessary. “In my

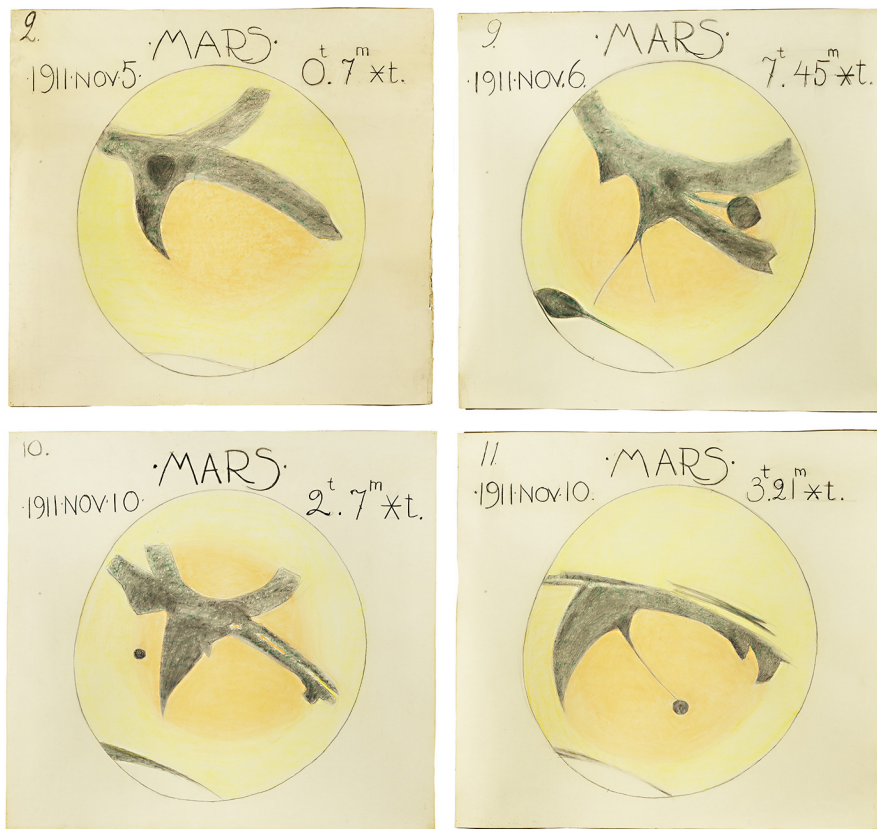
opinion, the Academy must open up its gates to younger talent and no longer hold the effervescent life of research at a distance, particularly as this is borne up by persons excluded from our society.”³³

The discussions were long. One member felt that the listeners were “the elite of the nation’s scientists” and that “what is called popular science” should be avoided. Another member protested.³⁴ After four stormy meetings a decision was reached that, in principle, was in accordance with the proposal from the Advisory Committee.

THAT KNOWLEDGE IS POWER was demonstrated during the war. When peace came, actors worked out visions of how research could be utilised for the construction of a new society, one with a more productive organisation of industry, economy and politics; the expressions *Rationalisierung*, *Planwirtschaft* and “technocracy” were coined in engineering circles.³⁵ In Sweden, the post-war era’s perceptions of the importance of the engineering sciences for reducing waste through increased efficiency were expressed in the plans to found an academy for them, with the mission of mustering and supporting technical research. In a consultation statement in 1918, the Academy of Sciences approved this proposal, which would benefit the nation “in the great competition between peoples”. In supporting documents, two expert members explained that the new academy needed more funding than had been proposed, and that it was necessary to deal with industrial workers’ growing demands for better pay and working conditions. An academy of technology should have a broad scope and needed to be supplemented by a general class, whose members dealt with issues relating to economics, factory hygiene, bathing facilities and much more.³⁶ The Academy of Engineering Sciences was founded straight after the war, at the same time as a number of industrial research institutes.

The post-war era not only saw the institutionalisation of a new kind of research, but also new opportunities for funding the science that had proven to be important. The Knut and Alice Wallenberg Foundation (KAW Foundation) was founded using a significant donation in 1918. Wallenberg, a banker, was active in the work of allocating grants. Funding was provided for activities that benefitted Sweden, preferably those of a national character or with links to his home city of Stockholm. These grants could be large and have a decisive influence on drawn-out processes in which public bodies had not been able to reach a decision on funding, such as the construction of Stockholm Public Library. The KAW Foundation could donate an initial grant, after which the city contributed land, on the condition that the state financed operations. The Academy of Sciences and actors around it received many grants.³⁷

For example, substantial funding was granted for a new observatory to replace the old one on Drottninggatan. The issue came up for discussion



OBSERVATIONS OF MARS performed by the Academy astronomer, Karl Bohlin, in 1911, and subsequently reproduced as large posters, probably for an exhibition.

after the war and, in 1927, a committee, which included the Academy's new astronomer, concluded that a new building was the only rational solution. The actors involved contacted Knut Wallenberg, who also had a seat on Stockholm City Council. The Academy of Sciences offered the city the right of disposal for Observatoriekullen and eventually received 900,000 kronor for it. Wallenberg was prepared to allow the KAW Foundation to contribute one million, and more besides, on the assumption that the observatory would be built in Saltsjöbaden, the seaside resort and garden city which he had founded before the turn of the century. The Riksdag noted that no funding had been applied for from the public purse, and allowed the observatory's instruments to be imported duty-free. It was inaugurated in 1931 and received continued funding from the KAW Foundation, although some members of the board wondered whether its task really was to pay for its operations.³⁸

In 1928, the Academy elected Knut Wallenberg as a member of the class for economic, statistical and social sciences and, in 1938, celebrated him on

his 85th birthday. He died shortly thereafter, and the Academy decided to honour him by postponing his replacement among the members. The following year, the 75-year-old Marcus Wallenberg was elected, after succeeding his brother as chair of the KAW Foundation. At the same time, the Academy adopted new statutes with the intention of rejuvenating the classes. The press noted both the high average age and the attempt at rejuvenation.³⁹

In 1937, industrialist Axel Wenner-Gren made a donation to set up the Wenner-Gren Society, which also provided research funding but was smaller and perhaps less successful than the KAW Foundation. But the Rockefeller Foundation, created in 1913, was huge; it came to donate large amounts of money to research in the Europe that was to be rebuilt. Grants also came to Sweden, and to a state higher education institution such as the Caroline Institute. Research grants contributed to activities and actors that were often on the margins of traditional disciplines, and to a nascent transformation of the institute from a medical school to research institution.⁴⁰ These resources allowed alternatives to older forms of organisation to become established and grow.

THE INTERNATIONAL ORDER OF THE PRE-WAR YEARS was something that the Academy of Sciences was keen to re-establish. After tense internal processes, in 1919 it decided to award one Nobel Prize for that year, and two that had been reserved from 1918, during the war. All three went to Germans. The choice of chemist Fritz Haber received the most attention, as he had placed himself and his science at the service of the German state during the war. The prize was motivated by his contribution to the process that enabled industrial production of artificial fertiliser which, in turn, contributed to feeding people.⁴¹

In the conservative, German-oriented press, the Academy was lauded for rewarding scientific merit in a principled manner. In a much-discussed article, the French-oriented leader of the Social-Democrats, Hjalmar Branting, sharply criticised the prize to Haber. The Academy's inability to see worthy recipients anywhere other than Germany was a manifestation of its unspoken bias, he stated. Academy members found the critics' opinions to be political, while their own opinion was scientifically based and apolitical. Objectivity and neutrality were values to be emphasised, as academics tried to protect their status as the unquestioned arbiters of scientific and cultural issues, not least bearing in mind the democratisation that could entail political governance elected by the uneducated masses.

Foreign comments about the decision by the Academy of Sciences followed the old battle lines. Some regarded it as an impartial confirmation of the superiority of German science. Others indignantly wondered whether those managing Nobel's vision were blind and entirely ignorant of the fact that Haber, according to the Hague Convention, was probably a war criminal. It

became practically impossible to maintain a neutral stance. Not taking a position was itself a politicised position in a polarised situation.

The fact that the Academy had such problems seeing Albert Einstein as a worthy recipient hardly improved its prestige. He was first nominated in 1910, followed by a growing number of nominations from internationally leading physicists. However, the Swedish prize committee had a disinclination, particularly the influential Nobel Laureate Allvar Gullstrand, to reward abstract mathematical theories, even though the general theory of relativity was considered to have been empirically confirmed in 1919. But in 1921, theoretical physicist Carl Wilhelm Oseen was elected to the Academy, taking a seat on the Nobel committee the following year. He argued that Einstein should be rewarded for his discovery of the photoelectric effect. This move circumvented the theory of relativity, the object of such shifting opinions and, in 1922, Einstein was awarded the reserved prize from 1921.⁴²

This story shows that very local politics continued to affect decisions about prizes, and that images of science circulated in public life beyond the control of scientists. Outside the domain of physicists, Einstein's theory was perceived as an indication of the relativism of the times and a break with established values such as the True, the Good and the Beautiful. In exaggerated interpretations, observers could project both hopes and fears upon the theory of relativity. Swedish philosophers were convinced they could prove its absurdity through conceptual analysis.⁴³

Politics also crept into the international organisation of science. In 1919, the victorious Allies were behind the founding of the International Research Council, which was to support cooperation within international scientific unions and admit countries as members – but not from the Central Powers, which lost the war. They were, so to speak, trying to create an empty space in which to expand by excluding Germany from international science, which it had previously dominated.⁴⁴

This situation was a dilemma for the neutral nations, and for the Academy of Sciences. For the Academy, the Nobel Prize brought international status, but locally-made decisions about the prizes should not be allowed to undermine the prestige associated with Nobel. The decision-makers needed, in one way or another, to deal with the external nominations of candidates and the propensity to interpret the awarding of prizes from national perspectives. The prizes also came to be spread across more countries and, in 1920, the Academy approved Sweden's membership of the International Research Council. This choice, to cooperate with the Allies, corresponded to the official Swedish position. Arrhenius supported the rallying, and it possibly contributed to science not being alienated from political power in the democratic state. Meanwhile, the Academy of Sciences, and members from other neutral countries, worked from inside the organisation to end the boycott of

Germany. They succeeded in 1926. The organisation of scientific unions and national committees was further developed and, in 1931, it was reformed into the International Council of Scientific Unions (ICSU), comprising both international unions for disciplines and nations as members.

THE DOMESTIC ORDER was also under reconstruction. The Academy of Sciences could serve as a platform and network for actors that made creative use of the era's new opportunities and resources.

Manne Siegbahn became professor of physics in Lund and, in 1922, accepted an invitation to Uppsala University, where the department had better equipment. At the same time, he was elected to the Academy and, the following year, to the Nobel Committee for Physics. He was also nominated for a Nobel Prize, but asked not to be assessed. The following year he travelled around the US and realised that his experimental research required more advanced equipment, and thus more money, for future success. He applied for a grant from the Rockefeller Foundation, which found his research to be narrowly specialised in precision measurement and perhaps not revolutionary in the way it desired. When, in 1925, Siegbahn was again nominated for the Nobel Prize, he accepted the assessment and gained the support of committee members from Uppsala, but not from the Stockholmers. The Academy eventually decided that the prize that had been reserved in 1924 should go to Siegbahn alone, which was regarded by some people as an overestimation in comparison with previous laureates.⁴⁵

After this, Siegbahn applied for funding for significant improvements to his department, but this was not possible within the university framework. Instead, in 1930, he approached Knut Wallenberg with a plan to re-establish the physics institute of the Academy of Sciences, which had been defunct since the end of the war. The response was that the KAW Foundation could contribute to the total cost of three million kronor if half was acquired elsewhere. However, the Rockefeller Foundation refused a proposal, after which the Great Depression made the whole issue less relevant. But, in 1934, Siegbahn returned with new plans. He had obtained funding from the Academy of Sciences, which would finance the newbuild with a major grant from the Nobel Foundation and ask the Riksdag to give him a personal professorship. Academic authorities opposed a research institute outside the university organisation – something we will return to soon – but everything fell into place for Siegbahn. In 1937, he took up the position as director of the Academy's Research Institute for Experimental Physics, which was talked about in terms of a Nobel institute, particularly in international contexts. He continued to receive large grants from the KAW Foundation, eventually in cooperation with the Rockefeller Foundation.⁴⁶

The Svedberg, who was baptised Theodor, gained a doctoral degree in

chemistry from Uppsala University at the age of 23. He was regarded as a scientific prodigy, and invitations to a range of places made local actors work to keep him. With the help of a grant from a donation fund, in 1912 the Riksdag decided to establish a personal professorship in physical chemistry for the then 28-year-old Svedberg, who was elected to the Academy of Sciences the following year. As a visiting professor in the US in 1923, he was impressed and inspired by the can-do spirit. Home again, he began to plan for an entirely new laboratory and, in 1925, he became a member of the Nobel Committee for Chemistry, which proposed that the prize for 1926 should be reserved. Instead, the proposal in the Academy was that it should be given to Svedberg; this passed the vote. The fact that he was the sole recipient of the chemistry prize was hardly in line with previous decisions, but probably strengthened the Rockefeller Foundation's willingness to contribute to his laboratory. Uppsala University then applied for 1.2 million kronor for a newbuild. The minister found the sum large, but nevertheless motivated, bearing in mind the importance of Svedberg's work, which had been confirmed by the Nobel Prize: "As we know, there has been no lack of offers to attract a person of Svedberg's capacity to foreign lands, particularly America, where almost inexhaustible resources are on offer to scientific research." The Riksdag accepted, and Svedberg then received large grants from the Rockefeller and KAW foundations.⁴⁷

A third Swede who received the Nobel Prize during the interwar years was the German-born chemist Hans von Euler-Chelpin. As a professor at Stockholm University College, in 1914 he became a member of the Academy of Sciences and of the Nobel Committee for Chemistry in 1929. He received his Nobel Prize the same year. Like Siegbahn and Svedberg, von Euler also received large grants from the KAW and Rockefeller foundations, including funding for a new institute of biochemistry.⁴⁸ All three stretched the limits of traditional science, for example towards the military, industry and medicine. Siegbahn's and Svedberg's stars shone so brightly that they tended to extinguish those around them – and they had a great influence for many years. They each sat for 39 years in their Nobel committees, resigning in the 1960s, at the ages of 76 and 80, respectively.

Personal professorships were also awarded to other brilliant talents in the interwar years; these positions did not entail long-term obligations for the state, hardly even short-term ones if they were funded by donations. They could also more or less have their own institutes, which were sometimes alongside the universities.⁴⁹ These actors are indicative of the changing role of academics. Previously, a professor was an official and a member of the academic corporation which, in the service of the king, dutifully awarded degrees to students who could then move on and become pillars of society. The professors of the new era rather had the character of entrepreneurial geniuses, but

not lonely ones. Instead, they were more like dynamic team leaders, conducting research for the benefit of their science, without taking the bounds of their work for granted, but making active efforts to reshape them.

THE FRAMEWORKS OF OLDER INSTITUTIONS could also be altered, but this required additional resources. If a Nobel Prize was reserved and then not awarded the following year, most of the prize money could be transferred to the Nobel committee's restricted fund. During the world wars and the intervening years, numerous prizes were not awarded, particularly by the Caroline Institute. After World War One, the chemists, and then the physicists, began to award grants from their restricted funds to support research. This practice became established and actors such as Svedberg and von Euler became, in principle, permanent recipients. The willingness to not award prizes could be suspected of arising from vested interest, rather than from a total lack of worthy recipients and, in 1936, it was the subject of public criticism and debate.⁵⁰



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*Arrhenius in
the Session Hall*
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Another way of using the restricted funds would be to create a Nobel institute. This issue became relevant after the death of Arrhenius in 1927, when it was unclear what should happen to the buildings for physical chemistry. After many discussions, a committee presented a range of suggestions in 1932. The chemists had the best finances but decided that there was not enough money to establish a Nobel institute for chemistry, particularly not if they were to continue awarding research grants. Finally, in 1933, the Nobel Institute for Theoretical Physics was founded. It moved into Arrhenius' old buildings and had the salary of its director, Carl Wilhelm Oseen, as its real cost. He did not need expensive experimental equipment and worked on the Nobel committee until his death in 1944.⁵¹

As we have seen above, a research institute for experimental physics came later, but with entirely different costs. In association with this, the Academy of Sciences requested a personal professorship for Siegbahn, with no responsibility for teaching or examination. It emphasised the significance of Sweden remaining on the frontline of international research, due to the task of awarding Nobel prizes. In its statement on this proposal, the consistorium of Uppsala University questioned whether independent research institutes, isolated from teaching and supervision, were entirely positive. The consistorium thought that it would be unfortunate for the state if the universities were unable to retain their best researchers. They needed better conditions for fulfilling their task – in the long run, “the cultivation of science in the country would not benefit from the universities declining into scientific institutions

CIGARETTE BREAK beside the 225 cm-cyclotron at the Nobel Institute for Experimental Physics in 1957.



of a lower class".⁵² The university chancellor agreed, and wanted to investigate the potential to create better terms for Siegbahn in Uppsala. The minister supported the professorship, but felt that the matter illustrated a fault in the university organisation, that teaching and administrative tasks had grown so much that the academic faculty had no time for research. After an inquiry, it was shown that the university option was much more expensive for the state than the solution of an institute and its associated donations. Siegbahn received his professorship.

The interwar years and the depression were a hard time for the older universities, tasked with combining teaching and research, with educating not only increasing numbers of students, but also forming future researchers and academic teachers. The slow-changing and partially self-governing university institution was difficult for the state to manage. Their relationship was characterised by ambivalence and mutual watchfulness. The politicians' fear that decisions on increased funding could have prejudicial effects throughout the system, were matched by careful, defensive grant applications from university faculty.⁵³

If we turn our gaze away from the universities, other dimensions are added. In 1921, economist and socially conservative politician Gösta Bagge was one of the founders of the *Socialinstitutet* [Institute of Social Work] in Stockholm, subsequently successful in obtaining significant funding from the Rockefeller Foundation, which was decisive for its development. In the field of agricultural education, discussions had been underway on the establishment of a university college since the start of the 20th century, but the state could not reach a decision due to a paralysing triangle drama on the issue of location. There were agricultural institutes in Ultuna and Alnarp, close to the universities in Uppsala and Lund, respectively, and also the Swedish Central Agricultural Experiment Station that was located on the experimental field of the Academy of Agriculture in Stockholm. After much ado, in 1931, the Riksdag decided to establish the University College of Agriculture in Ultuna, which then received funding for new premises and faculty. Since the war, the Chalmers Technical Institute in Gothenburg had been fighting to achieve university status and additional resources, referencing the nation's need for engineers and industry's need for technological research. For an equal amount of time, the Royal Institute of Technology (KTH) in Stockholm had resisted such suggestions by referencing the way that existing resources were not sufficient for two university colleges. This deadlock was solved in 1936–37, through a Riksdag decision that made Chalmers a real institute of technology, with status as a university college. When this tug-of-war was over, funding started to flood to Chalmers – *and* to KTH.⁵⁴

We can see that there were alternatives to state funding, and that grants were easier to obtain if academics did not fight each other.

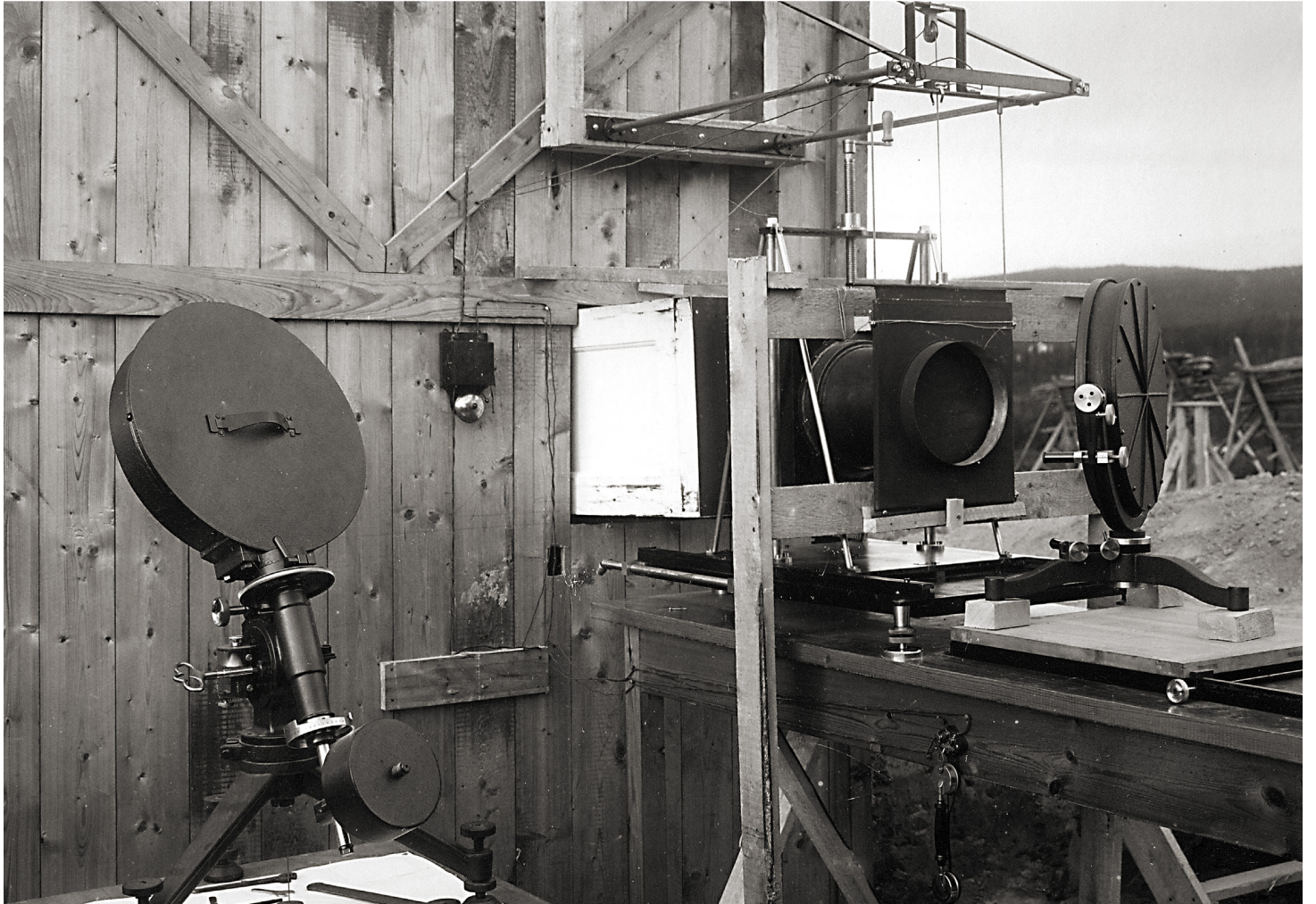
THE ACADEMY'S BICENTENARY IN 1939 was probably intended to be a joyous finale to a 1930s that had seen difficulties, but also jubilee celebrations for other royal academies.⁵⁵ The idea of writing a history of the Academy for the jubilee arose as early as 1932, with the chemist Henrik Söderbaum as author. He was the permanent secretary, but had turned 70 and was to leave the post in 1933, after which he should have time for the historical scholarship he was already conducting. Söderbaum appeared to be highly suitable for authoring the Academy's 200-year history, but he died in the autumn of 1933. No one knew then that more misfortunes were to come.

A committee was appointed. Initially, it intended to deal with the 1739–1819 period, and to ask Bengt Hildebrand if he would like to take on the task.⁵⁶ Hildebrand came from an influential and learned family; he was working on a doctoral thesis in history at Stockholm University College, but also had various editorial commissions. He was awarded his doctorate in 1937. At the same time, he became editor of the *Svenskt biografiskt lexikon* [*Swedish Dictionary of Biography*], but received criticism because his level of ambition was so high that the publication rate suffered.

Hildebrand accepted the commission at the end of 1934, but the choice of Hildebrand was questioned by Academy member Eli Heckscher who, at this time, was striving to make economic history a research field of its own. In the spring of 1937, Hildebrand asked for an advance on his fee so he could take leave in order to entirely devote himself to the history of the Academy. The committee wondered whether work would be completed in time for the jubilee. "Licentiate Hildebrand explained that he would do his utmost, but that the type and scope of the work made it impossible for him to answer the question at present." After some discussion, Hildebrand received his advance.⁵⁷

In 1938, a sub-committee started to plan the festivities. Not least, who would be invited was a matter for discussion. A review of the invitation lists to the Linnaeus jubilee in 1907 and invitations from other places, and of institutions engaged in the active exchange of publications, resulted in around 500 candidates. The best quote for the practical arrangements came from the Reso travel agency, that was founded in 1937 ahead of upcoming legislation on annual holidays for all workers. The festivities were moved from 2 June to September, so that the jubilee publications would definitely be ready.⁵⁸

The committee had tied two biographies of former secretaries to the jubilee. Carl Wilhelm Oseen was working on a book about physicist Johan Carl Wilcke. Nils Nordenmark was not a member of the Academy, but had a doctorate in astronomy and was writing about Pehr Wilhelm Wargentin, the astronomer. Both books were approved for printing in good time, but there was probably concern about Hildebrand's history; the period it covered had gradually been reduced and the author had difficulty saying anything



about the future. Just before Christmas 1938, Hildebrand explained to the secretary, physicist Henning Pleijel, that he was overjoyed to have found hitherto unknown archive materials that showed Mårten Triewald's central role in the founding of the Academy, although he understood Pleijel's concerns about the time. "For me, there can be no other working principles than the scientific, that the work is totally reliable, and the formal, that it is elegantly readable – and this scientific stance cannot be considered irrelevant as it is a history of the Academy of Sciences."⁵⁹

The first three chapters were finished in February 1939. The editorial committee discussed its responsibilities and whether its position should be clarified in a preface. It is as if the horizon was darkening – as it was in the world too. In March, Germany invaded Prague. Preparations continued, even if the jubilee had to be moved back a few days because the king and crown prince were to be on field manoeuvres. Meanwhile, the event grew as the number of accepted invitations increased. In August, the king decided to hold a reception for 350 people on the third and final day of festivities. The secretary was to ask the Ministry of Foreign Affairs for "guidance in the grouping of invitees, which included the now defunct Czechoslovakian Republic".⁶⁰

A preface was written for Hildebrand's history. It explained that the work had a narrower temporal scope than was originally intended but, on the other hand, this had enabled a more detailed description of the prehistory of the Academy and its foundation. It was said that this limitation "may be unfortunate from one perspective", but the wording was changed to it "had been necessary in the given circumstances".⁶¹

ON 1 SEPTEMBER 1939, Germany invaded Poland and, on 3 September, France and Great Britain declared war. The following day, the committee decided to cancel the jubilee. The Academy received many expressions of sympathy, also from Germans, lamenting that an international gathering for scholars had to be cancelled for political reasons. Media coverage then evaporated, but one newspaper, *Svenska Dagbladet*, published the responses that

THE TOTAL SOLAR ECLIPSE IN 1914 was an important event for Swedish astronomy. Under the direction of Bernhard Hasselberg (the man in the middle with an umbrella), an expedition was organised to Sollefteå, which lay within the zone of totality. The camera used to document the course of the eclipse can be seen in the background.

THE SOLAR IMAGE was led through a coelostat to the left, via a secondary mirror to the right, and into the lens behind the black cover. The camera itself was located in the building at the other end of the instrument.

had been received in an earlier survey of foreign researchers. It was a suite of celebratory observations about Swedish science.⁶²

The following general meeting, on 11 October, was transformed into a celebration. Seventy or so employees and members of the Academy of Sciences attended, as well as invited guests, which included the crown prince and the minister for ecclesiastical affairs. It was a hard blow, explained the president, “that we were bereft of the opportunity to gather the principals of science from near and far to a celebration of scientific brotherhood in our city”. He then looked back on the founding of the Academy.⁶³ Four prizes were awarded, of which three went to members of the Academy. The foreign recipients of prizes who had accepted invitations, including the economist John Maynard Keynes, could not attend. The only Swede, geneticist Herman Nilsson-Ehle, was unable to come due to ill-health.

Oseen’s and Nordenmark’s books were finished, Hildebrand’s was partially printed and was delivered early the following year. The librarian, Arne Holmberg, had produced a brochure in English about the Academy for the jubilee, as well as other short texts with a historical perspective. He also compiled an account of the jubilee and the accolades that were received, to be distributed as a greeting and a thank you.

In retrospect, it is as if the story of the Academy of Sciences’ bicentenary was driven towards its tragic end with dramatic inevitability. The events also illuminate how such an apparently timeless institution acted in its times, under the influence of politics and other circumstances. Politics had an even more dramatic effect on German academies, which had to consent to or deal with pressure to introduce the era’s new *Führer*-principle in their management.⁶⁴

Consultations and councils

The war brought changed circumstances for many organisations, including the Academy of Sciences. For example, slightly more members started to attend meetings. Recipients of stipends were permitted to postpone their reports; one recipient had to remain in the US until it was safe to travel home. At the Museum of Natural History, so many people were in military service that activities in some departments were put on hold. Difficulties included unforeseen expenses for air-raid shelters. On the other hand, there was equally unforeseen extra income from Almqvist & Wiksell: trade barriers meant that the manufacture of advertising calendars had increased and the company felt that some of the profit should benefit the Academy. There were innumerable practicalities to deal with, such as the issue of moving the prototypes for the metre and the kilogramme. One noticeable change was that the majority of international exchanges were cancelled, not only the bicentenary: “The connection to scientific life in almost every corner of the

world that the Nobel Institute had through the exchange of publication has, during 1943, been reduced to almost nothing.”⁶⁵

Nobel matters perhaps had the most noticeable international impact and were tangibly affected by the state of affairs. In 1939, two German chemists had to refuse their prizes. The Nazi regime had forbidden all association with the Nobel institution after German pacifist Carl von Ossietzky was awarded the Peace Prize. The prizes in physics and chemistry were reserved for the years 1940–42, and most of the prize money was transferred to the Nobel committees’ restricted funds. The Nobel Banquet was cancelled and the money that should have been spent on it was donated to the Red Cross.

Anguish about the course of the war can be read in the old minutes – as well as the relief at its end. Members rejoiced at the recovery of Denmark’s and Norway’s freedom and sent congratulatory telegrams to their sister academies in Copenhagen, Oslo and Trondheim. Efforts to rebuild damaged institutions started immediately in 1945: “For the first time since 1938, the Nobel Banquet was held on 10 December in the grand hall of Konserthuset [the Concert Hall] with perhaps the largest attendance ever since the prize was founded.”⁶⁶

Even if the times were dramatic and gave rise to dread, the Academy maintained a great deal of its activities. For example, it functioned as a consultation body according to established procedures, although the questions could be new. In what follows, we will see how the Academy of Sciences acted on the issue of establishing state research councils. This innovation in the field of technical research quickly became a model that was referenced when other areas of research argued for the founding of similar institutions.⁶⁷ In these discussions, we will see how the position of the academies – and to some extent the university faculties – was regarded in relation to this new institution.

DEMANDS FOR REFORM AND EXPANSION were expressed clearly and at an early stage in higher technical education. These requests met increased interest from politicians, after the Chalmers issue had been resolved. Higher education institutions started lobbying through influential institutions such as the *Svenska teknologföreningen* [Swedish Association of Engineers], the Federation of Swedish Industries and the Academy of Engineering Sciences. The main actors came from a fairly small circle and wore many hats. Increased funding for technical research was an issue in the 1938 election, and the following year the Riksdag was in support of an inquiry. The war stopped this, but two committees were appointed in 1940, to investigate higher technical education and the organisation of technical-scientific research, respectively. They had a joint chair in Gösta Malm, authoritative leader of many other state inquiries and president of the board of the Royal Institute of Technology, KTH, since 1933. The education committee was appointed by the Ministry of Ecclesiastical Affairs. It rapidly delivered proposals that the

Riksdag accepted and that became the starting point for a decisive expansion of higher education in technology.⁶⁸

However, it is the other of what were then called the Malmian committees that has received the most attention. This research committee was appointed by the Ministry of Trade and has been retrospectively named *the* Malmian committee.⁶⁹ Its seven members included the vice-chancellor of KTH and the director of the Academy of Engineering Sciences (IVA), as well as The Svedberg. He emphasised the importance of basic research. The two institutes of technology wanted to link research to educational institutions, citing the lack of researchers as a problem. IVA, which was the principal for various research institutes and had a role like that of a public authority, preferred a central institute under its supervision so that research funding would not be frittered away in engineering education.

Together, both committees suggested the introduction of a licentiate degree and scholarships at the institutes of technology in order to support “research education” – this is probably the earliest occurrence of this compound noun, which subsequently became a key concept in Swedish research and education policy. The research committee then worked on numerous options for an organisation suitable for channelling increased state funding to technical-scientific research that industry was not managing itself. In March 1941, a delegation undertook a study visit to Germany. There, they observed a central state-run body, *Reichforschungsrat*, created by the Nazi regime, which did not conduct its own research, but instead developed plans for the allocation of funding, with state benefit as its goal. This state funding was relatively small, but had a relatively large influence on research because it was added to an institution’s normal operating budget. This institutional model was translated to domestic circumstances as the Technical Research Council, a central body tasked with allocating major state funding to technical research.⁷⁰

The Academy of Sciences appointed a committee to make a statement about the proposal. This included Siegbahn, who was subsequently made a member of the Research Council, as was Svedberg, who had been a member of the state committee. The Academy approved the proposal because funding for technical-scientific research was a vital societal issue. At the same time, it was emphasised that basic research was necessary for the activities the council was intended to support, and that there was a long tradition of educating researchers at academic institutions. Therefore, another important task for the proposed council was to support these activities at universities and independent university colleges. These should potentially be represented on the council; at the very least, numerous engineering corporations should not have such a great influence on the election of nominated members. The only proposal rejected by the Academy was a small grant to IVA, which was felt to be irrelevant in the context.⁷¹

IVA, on its side, opposed the proposal for an entirely new and independent institution. Instead, it recommended a central council within IVA's existing organisation, which would be cheaper for the state. However, the government took the inquiry's approach and, in 1942, the Riksdag decided on the establishment of the Technical Research Council.⁷²

THIS DECISION INSPIRED efforts in other areas of research, illustrating the theory of institutional isomorphism.

In 1943, the government appointed two committees to investigate the organisation of research in the social sciences and medicine, respectively. The first committee, which was entirely dominated by academics, soon presented a brief report. This underlined the need for more research funding, but also for more cooperation and a better overview. One way of achieving a centralised organisation would be to base it within an academy. Although the Academy of Sciences originally had an economic focus, there was no academy for social sciences at the time, so that option was rejected. Another option would be to follow the example of technical research. With reference to the increasing importance of research for society, the proposal was to establish a research council for social sciences, which would include representation from societal stakeholders. Social science faculties were not a viable alternative to a council as their tasks would be tied to higher education institutions.⁷³

The Academy of Sciences approved the proposal in principle, but recommended better representation on the council for research interests and emphasised the importance of increasing ordinary funding for higher education.⁷⁴ Others were more critical, stating that the faculties, with their expert knowledge, should be involved in the allocation of new funding. It would be better to strengthen existing institutions, instead of creating a new administrative apparatus that could entail political control and thus possibly threaten the freedom of research.⁷⁵

The government did not move forward with the proposal; the following year it appointed a new committee with many professors. This had a somewhat wider task, but also proposed establishing a research council for the social sciences. The Riksdag voted for one in 1947, by which time there were a number of councils to cite as precedent.⁷⁶

In medicine, intense and systematic lobbying had been conducted. A central actor in this was a radical physiologist from Lund, Georg Kahlson, who publicly and energetically highlighted the lack of research funding despite it being such a good investment in the national economy – while also highlighting the lack of interest in research among professors at higher education institutions. He was behind the motion in the Riksdag that led to the appointment of a nine-seat committee in 1943; it included no politicians, but all the more professors. Among them was the secretary of the Academy of

Sciences, chemist Arne Westgren; a further four were Academy members or were made members the year after the inquiry.⁷⁷

The directive showed that the state was sceptical about whether the tasks in question could be managed by the Academy, despite its class for medicine, or by the medical faculties, which had different duties to those of a potentially centralised body. There were conflicting opinions among committee members, between a slim majority that wanted a research council able to allocate significant funding, and a large minority who felt that faculties needed modernising before new organisations were created. Finally, the committee proposed a research council with major funding to distribute, as well as research grants for the faculties themselves and 27 stipends for students working on doctoral theses.⁷⁸ Parallels were drawn with the field of technical research.

In its consultation statement, the Academy of Sciences accepted the description of the problem and made a frequently repeated metaphorical economic argument its own: the issue was a state investment that would soon bring good returns. The proposed solutions were found to be fit for purpose. However, there was opposition to the idea that a faculty should not have the right to decide upon faculty grants, but that decisions about dispositions would be made by a higher instance that lacked the right expertise. Still, the most important thing, said the Academy, was establishing a medical research council.⁷⁹

The committee's proposal was approved by the Riksdag, which awarded equal funding to the council and the faculties.⁸⁰



ESSAY

Modelling the atomic age
p. 422–427

THESE INSTITUTION-BUILDING INITIATIVES stood in relation to the war years, when scientists served the military in a variety of ways. The context of the times is especially clear in military research, not least in the Atomic Committee. This was established a few months after the detonation of the first atomic bombs and came to be something of an extension to the Committee for Natural Science Research, which we will come to shortly. Academics dominated; Manne Siegbahn and Arne Tiselius, professor of biochemistry at Uppsala University, were members of both committees. Half of the members of the Atomic Committee were Academy members, and another one was voted in the year after the inquiry.⁸¹

Its task was to investigate the potential use of atomic power. On the question of creating a specific institute for research in this field, the committee found that existing institutions, such as the Research Institute for Experimental Physics at the Academy of Sciences, should be modernised before

IN THE EARLY 20TH CENTURY, Axel Hamberg built five “research huts” in Sarek. One of these was built on Bårddetjåhkkå (Pärtetjåkko) at an altitude of 1834 metres, and mainly used for meteorological observations. A century later, remnants of it are still standing.

new organisations were considered. Significant funding was proposed for academic research, because many fundamental questions needed to be examined before more practically focused specific research could be conducted. Due to the level of uncertainty, the committee proposed that it remain as a coordinating body for the field until further notice.⁸²

At the same time, Siegbahn was the recipient of large grants from the Rockefeller Foundation and the KAW Foundation for a new cyclotron facility at his institute. The grants and facility then became even bigger and more expensive due to a rapid sequence of events. When the donations were secured, matching funding was applied for from the state. The formal process says something about how the actors handled these issues. Siegbahn first approached the Academy, which approved and then went to the King in Council, which consulted the Atomic Committee – of which Siegbahn was a member – which also approved the request. The Agency for Administrative Development disapproved of the Academy's actions, because it was apparent in advance that further state funding would be necessary. However, the Riksdag accepted major increases in funding.⁸³

In its consultation statement on the Atomic Committee's report, the Academy emphasised the importance of the cyclotron for Swedish research in atomic physics, and that it was wisest to build upon the experimental resources that were already available. The Academy happily agreed to the proposed grants and the modernisation of the nation's physics and chemistry departments.⁸⁴ KTH also approved of the proposal, but felt that this work was not only a concern for academics; engineers and others were also necessary in order to achieve practical results. The Agency for Administrative Development rejected the proposals, which it found unrealistic in their national presumption. It stated that the committee had presented "a proposal in which the currently heightened interest in atomic research serves as a pretence for a general modernisation of various institutions in higher education and other establishments that are occupied with research in physics and chemistry".⁸⁵

The minister for ecclesiastical affairs, Tage Erlander, did not agree. The Riksdag accepted the proposals in principle and the Atomic Committee became something of a research council in its field, but the strong emphasis on basic research that this institution acquired became problematic when academic knowledge was to be translated into practical results.

THE ACADEMY WAS ALSO ENGAGED with the mathematical and natural sciences that it was tasked with promoting. In the spring of 1942, while providing a statement on the proposal to establish a technical research council, it also had to provide a statement on a motion that, in the light of cutbacks, wished to guarantee funding for Swedish culture and research. The motion

suggested that one way to do this was to free foundations that promoted research from the tax obligations imposed upon them in a recent court case.⁸⁶

In its statement, the Academy contrasted a “then”, when research managed on fairly modest means, with a “now”, with research being organised in other ways and subject to entirely different costs for experimental equipment and other outgoings. Siegbahn’s and Svedberg’s institutions were named as examples. Another difference was the relentless contemporary demand for practical applications for scientific findings. The cultural aspect was just as important as the economic aspects of science, not least for Sweden’s standing among other civilised nations. Bearing in mind the importance of science in relation to its modest state funding, the Academy was thankful for the sizeable donations research had received, for example from the Rockefeller Foundation and, in Sweden, primarily from the KAW Foundation and the Wenner-Gren Society. The new obligation to pay tax was a disaster for scientific research. The Academy of Sciences expanded on arguments that had long been established in the technical field:⁸⁷

This is so more unfortunate, as one would expect that, after the end of the war, the efforts of every civilised nation will be used to benefit its general affluence by utilising all the progress that war necessitated and which, according to the experience of the previous world war, should entail great progress. With insufficient funding for scientific research, our nation will face the threat of hopelessly lagging behind in the struggle for the utilisation of natural resources.

The Academy eagerly approved the motion’s request for an inquiry into ways of supporting research funding alongside the normal funding from the state budget. However, the proposal was rejected by the Riksdag’s standing committee. The battle against taxation of foundations and funds, including those of the Academy, continued and was successful in 1942.⁸⁸

In the spring of 1944, the Academy had to present a statement on motions in the Riksdag requesting an inquiry into improved conditions for research in the natural sciences. The author was Harald Nordenson, business executive and chemist who was a pupil of Svedberg and, like him, had been a member of the committee that proposed forming the Technical Research Council.

The Academy of Sciences appointed a committee with representatives of the first seven classes, including the ever-present Siegbahn and Svedberg. In their statement, they explained that natural sciences were the origin of the various products of applied research. It was thus vital that basic scientific research received support, not just technical research. A parenthesis here is that the humanities faculty at Uppsala University submitted a statement at the same time, explaining that it was also vital for humanities research to receive funding.⁸⁹ The Academy snappily approved the motions and present-

ed something of a wish-list. In an analogy with the technical field, there were requests that had not been covered in the motions: annual state funding and a research council. If the inquiry found that applications could be assessed under the auspices of the Academy, it was prepared to assume this task.⁹⁰

The Committee for Natural Science Research was manned in a way that says something about the political will behind it. The state secretary to the minister for ecclesiastical affairs represented the non-academic element, while the other six members were professors. All of them were or, after a few years, became, members of the Academy of Sciences, including historian Sven Tunberg, who was chair. He was also the vice-chancellor of Stockholm University College which, according to the directive, should receive special attention. Familiar names included Kahlson, Siegbahn, Tiselius and Secretary Westgren. The report that was published in 1945 proposed comprehensive regeneration in research in the natural sciences and the establishment of a research council. The committee felt that the recommended council should be independent of both the Academy of Sciences and the Technical Research Council.⁹¹

The Academy's detailed statement developed into a song of praise for the report. The only hint of criticism was that the committee had possibly placed too great a limit on the creation of new professorships. Established tropes were used: state funding for research was the price for international status as a civilised nation, but this cost was primarily an investment that would soon be highly profitable and without which the country would inevitably lag behind. Scientific research was so vital that it was in the interest of applied research to support the basic research that could not be governed by specific goals:⁹²

To justly serve the interests of applied research, pure research in the natural sciences should thus enjoy the freedom and autonomy that its open-ended search for knowledge absolutely requires. Therefore, it should not generally be conducted with concern for the discernible day-to-day needs of practical research.

Other consultation bodies emphasised that the council should not delay increases in faculty funding, or become a higher administrative apparatus. The minister did not share these concerns and, in 1946, the Riksdag decided to establish the council.⁹³

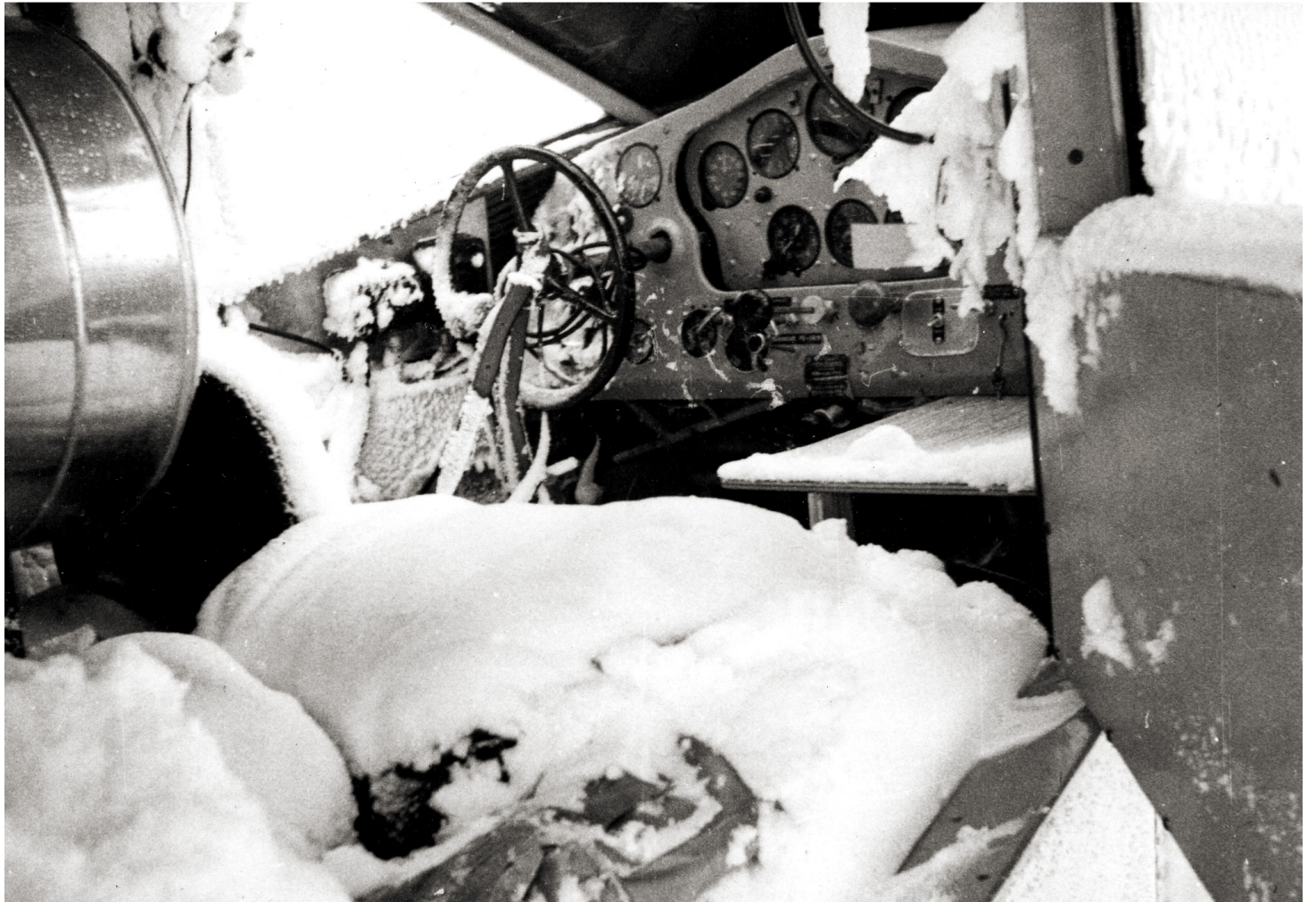
MORE RESEARCH COUNCILS and similar institutions were founded during this period. In agriculture, a committee chaired by Gösta Malm drew clear parallels to the technical field and, in 1944, proposed a research council. If the Academy of Agriculture had been a suitable centralised body, it would probably have acted and become one, according to the committee, which instead proposed a regulated cooperation between the intended council and the Academy. The Academy of Agriculture and other consultation bodies felt

that the Academy already functioned as a research council and could also assume these tasks formally. However, the committee's proposal was rejected by the University College of Agriculture, which felt that the council would govern research and be a threat to its autonomy. In 1945, the Riksdag decided to establish a research council for agriculture within the Academy of Agriculture, but with significant state influence.⁹⁴

In the humanities, a fund had been built up since 1927 using state lottery funding, *Humanistiska fonden* [the Humanist Fund], from which research grants were allocated by the Academy of Letters, History and Antiquities. It conducted its own inquiry and, in 1946, applied for annual research funding that was to be managed by the *Humanistiska fonden*. The Academy emphasised that state support for research in the area of material culture had increased so much that conditions for research in intellectual culture needed to improve for progress to be sound. Institutions for higher education requested expanded representation in the existing organisation with the *Humanistiska fonden*, over which the Academy of Letters had influence. The university chancellor discussed the possibility of instead establishing a research council, as in other areas of research. A government bill in 1947 stated that cultural progress could lag behind material progress if research in the humanities was neglected. The minister for ecclesiastical affairs approved the funding, which was to be allocated by the board of the *Humanistiska fonden*. However, a motion suggested a reduction in representation from the Academy of Letters. Its composition, age-wise, meant that its members did not reflect the current scholarly situation, and there was also an overrepresentation of interests from Stockholm and the discipline of history. The Budget Committee and the Riksdag approved the funding, but reduced the Academy's influence.⁹⁵

AN INSTITUTIONAL REFORMATION in research funding occurred, as we have seen, over a short, intense period. Using analogies with the formation of institutions in the field of technology, various actors successfully argued for the state to decide on funding and on research councils that allocated funding in other fields. At the same time, we should note a less striking parallel to technology, where the “Malmian committees” investigated research *and* education. In other domains too, questions about research organisation were linked to questions about the education of researchers and the organisation of basic education. Contemporary inquiries, such as the Expert Committee on Social Science Education, the Committee for Organising Medical Colleges, and the 1945 University Commission, all adhered to the principle that research and education should not be separated.

From our double institutionalist perspective, the formation of institutions during these six years is a clear illustration of the trend towards institutional isomorphism. Furthermore, once research councils were established in this



formative moment, the research council institution gained momentum and its further evolution became tangibly path-dependent. However, not all councils were long-lived. The Research Council for Producer Gas, from 1944, was dissolved in 1948.⁹⁶

The enduring significance of the research council as an institution, combined with its rapid breakthrough, has meant that the period we have just examined is often cited as the origin of Swedish research policy. This is an anachronistic perspective, in the sense that the actors did not themselves have the linguistic tools to grasp that they were pursuing such a policy: “research policy” as a term arrived in Swedish in the early 1960s, something to which we will return. An actor as important as Gösta Malm also felt that the way the issues were handled was objective, not political.⁹⁷

However, although the sense in which the actors actually conducted research policy is open to discussion, we can state that these were political decisions concerning research. This was very much politics on the researchers’ terms, primarily the natural scientists, medics and engineers. We have seen how an influential group in the research community put forward a forceful argument: the scientific production of knowledge was the foundation of material development, general prosperity and national status, so it was vital that politicians allowed increased funding, but for research to be of the most use to society it was also necessary for it to be politically independent and governed by researchers themselves. Strictly speaking, politicians accepted this argument, which meant that they paid for research while researchers governed it. Such a division of power and responsibility was potentially not stable in the long-term. We have also seen how rather small circles could exert great influence, including the ways in which some actors wore many different hats, and how the Academy of Sciences was an important consultation body, but also a meeting place and a platform, a web of networks. These networks brought together people who both made use of and contributed to the influence and status of the Academy.

We have also seen that many actors expressed scepticism about research councils that were external to institutions of higher education, as they were considered to house a seed of political governance, a potential threat to the freedom of research. Lecturers–researchers should govern themselves instead. There was also scepticism towards academies. In a previous chapter, we saw

TWO AUSTER AEROPLANES were taken on the 1949–1952 Norwegian-British-Swedish expedition to Antarctica (NBSX) for aerial reconnaissance, among other things. In the upper picture, one of the planes is being loaded onto the expedition vessel, *Norsel*.

THE PLANE’S COCKPIT after a snowstorm in Antarctica.



that at the start of the 19th century, Wilhelm von Humboldt questioned academies as research organisations, in relation to the new university he wanted the Prussian state to create. In this chapter, we have seen that politicians and others questioned academies as organisations for the allocation of funding, in relation to the new centralised bodies the Swedish state wanted to create during the 1940s. The academies had no success, whether in the former or the latter case, whether as performers of research or allocators of grants.

The question was what role the old academies would have in a future society, in a research field with more actors.

In silence, in public

This was not only a time of easily identifiable individual decisions to form organisations in dramatic circumstances, but also of quiet, drawn-out processes. One example is the one that led to the creation of the Kiruna Geophysical Observatory, in the far north of Sweden. The process illuminates how science expanded, in terms of larger facilities with costlier equipment and more staff, at the same time as international offshoots grew. We have seen that these patterns already existed in the 18th century, not least in astronomy and associated sciences, but the scale of this in the post-war years was on a different level. We will also see how the reasoning behind, and process of, institution-building took shape.⁹⁸

Observation and research activities in northern Norrland began at the start of the 20th century. In 1912, a scientific field station was built in Abisko for biology, geology, geophysics. The Academy of Sciences supported its activities and took over the station in 1933. Other activities in the area had other principals. After a proposal by Gösta Malm, the government wanted to examine the potential to merge them and tasked the Academy of Sciences, the State Department for Meteorology and Hydrology and the National Hydrographic Office with investigating the issue. The Abisko Committee, as it came to be known, had an energetic chair in the radio physicist and Academy member Rolf Sievert.⁹⁹

THE MORE SURPRISING ITEMS in the archive at the Center for History of Science include floor tiles and bricks. Vilhelm Carlheim-Gyllensköld collected historically interesting bricks and tiles because he believed they could be used to track various cultures' units of measure. The green tile comes from excavations at Tycho Brahe's castle, Uraniborg, on Ven, and was found in 1926, during the 350th anniversary celebrations of Brahe's observatory. The upper picture shows sample bricks that were sent to architect Anderberg prior to the construction of the Academy building in Frescati.

In a report in 1947, the committee proposed that a geophysical observatory should be established in Kiruna. One main argument was Sweden's international status: "For a small country such as Sweden, the importance of international research cooperation cannot be overestimated, particularly as our country, due to the war, has long been excluded from contacts with the rapidly developing scientific activities in the major nations." The institutions that had populated the committee concluded the report with statements on its proposal. The Academy of Sciences provided eager approval.¹⁰⁰

The government waited, but the Academy moved forward. A new class for geophysics, in which central actors took seats, was established in 1947. The following year saw the founding of the interim board for the Academy's research stations in northern Norrland. A temporary observatory was built in Kiruna and received operational funding from both the Natural Science Research Council and Kiruna municipality. Due to local circumstances and international cooperation, an operating grant was granted by the state in 1949 and, in 1952, the King in Council established regulations for the Committee for the Academy's Research Stations in Northern Norrland. Sievert convinced the Social Democratic politician Rickard Sandler to be chair of the new board.¹⁰¹

At this time, a new element had been added to this line of argument: the International Geophysical Year. This was linked to the Second International Polar Year 1932–33 which, in turn, had been linked to the Polar Year of 1882–83. The idea was to work with observations in an international network, where the observers could then share data. This third time, there was less interest in polar voyages and geographic surveys, and more focus on exploring planet Earth from geophysical and cosmophysical perspectives. The International Council of Scientific Unions was the highest coordinating body for this initiative, which was to take place in 1957–58.¹⁰²

In Sweden, it was called the Third Geophysical Year, with the Swedish National Committee of Geodesy and Geophysics doing the planning. This national committee had been in existence since 1924 and had broad representation, but the Academy of Sciences, with its class for geophysics, was a significant presence. In 1954, an application was submitted for two million kronor to finance the Swedish efforts. The plan had been developed in partnership with neighbouring countries, who felt that a Nordic cooperation was "extremely desirable for both scientific and political reasons".¹⁰³ The focus would be on the polar regions, the exploration of which was of great practical benefit for the expansion of air traffic. The minister for ecclesiastical affairs recommended that Sweden participated in this international cooperation, but explained that more specifics were necessary for continued funding.

The following year, an application was submitted with the total amount reduced to one million kronor. This streamlined programme included sup-



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port for the Capri Research Station for Astrophysics and for activities in Kiruna. The Natural Science Research Council and the Academy of Sciences approved, and the Riksdag accepted.¹⁰⁴

Also that year, a new application was submitted for funding for the observatory in Kiruna. The board of the Committee for the Academy's Research Stations emphasised the need to complete the observatory for the Third Geophysical Year. The Research Council had already subsidised much of the equipment, which needed to be used rationally, and both the Academy and Kiruna municipality had promised considerable funding – provided that the Riksdag reached a positive decision. The university chancellor, the Research Council and the County Administrative Board of Norrbotten approved, while the Agency for Administrative Development wondered whether there was no cheaper option. The minister for ecclesiastical affairs accepted the reasoning and the Riksdag agreed.¹⁰⁵

When Kiruna Geophysical Observatory was to open in 1957, its director, Sievert's pupil Bengt Hultqvist, contacted the secretary of the Academy of Sciences. Westgren, however, was sceptical about a public ceremony, which could appear ridiculous if the Academy was not able to maintain activities in Kiruna. Still, there was an inauguration with a range of dignitaries. It did not arouse interest among the national media, but was a regional matter.¹⁰⁶

Westgren, who had carefully monitored the Academy's finances, left his post a few years later. He was succeeded by Erik Rudberg, professor of physics and director of the Swedish Institute for Metals Research. He was more interested in supporting the institutions in the external organisation, which came to be bigger, better equipped and more expensive.¹⁰⁷ This trend entailed a centrifugal, decentralising tendency, as well as a tendency to sap funds.

MEDIA INTEREST in the Academy of Sciences became excessive in another context, namely as a party to the "Selling affair".¹⁰⁸ This came to have a formative impact on the Academy, as it so strongly affected the external image of the institution. For example, we will see how the affair caused politicians in the Riksdag to view the Academy in a new light. It also demonstrates how people within the institution could act in it and through it, as well as how relatively isolated the Academy was from the outside world.

In the 1950s, events that gave rise to debate about judicial corruption involved high-ranking officials, who acted in a manner that undermined legal certainty and trust in the authorities, through ties of loyalty and cronyism. Journalists, and others, criticised the remnants of a state of kingly power that was not considered appropriate for the rational, modern and democratic Sweden that was being built after the war. The popular author and stridently republican Vilhelm Moberg wanted to protect citizens from the abuse of authority, not least by bringing light on events that took place covertly.

The Selling affair came to involve a fine collection of legal instances: The Medical Board and the Board for Forensic Psychiatry, the Parliamentary Ombudsmen and the Office of the Chancellor of Justice, the Supreme Administrative Court and the King in Council, Svea Court of Appeal and the Supreme Court. The actors perceived the Academy of Sciences as a public authority. The affair developed through a barrage of pleas, statements, reports, accusations and counter-accusations, under growing media attention. It is impossible to provide a picture of this knotty issue that is fair, in some elevated meaning, but the main outline will be sketched out.¹⁰⁹

After a trial period, the Academy of Sciences employed Olof Selling in the palaeobotany department of the Museum of Natural History in 1945. He succeeded Rudolf Florin, who had been an assistant at the department since 1918, but who, in 1944, was made Professor Bergianus and then member of the Academy. When Thore Halle retired as director of the department and professor in 1951, Selling was named as his successor, while Florin was appointed one of the department's two inspectors from the Academy. After Selling received his doctorate in 1948, some antagonism had developed between himself and Florin; they belonged to different research traditions with different perspectives. A woman with a licentiate degree applied for the vacant position of assistant; she had worked at the department since 1944 and her research was closer to that of Florin and Halle than that of Selling. The latter believed she was unsuitable for the post. The inspectors were of the opposite opinion: she should be employed to counteract a one-sided focus in palaeobotanical activities. In a new document, Selling warned of the potentially unhappy consequences of such a decision. However, the Academy supported its inspectors, even if some members were hesitant about this way of obstructing the department's professor.

Florin then behaved in a manner than could be perceived as repeated needling, aimed at influencing the department for which Selling had responsibility. Selling reacted with letters, prohibitions and other measures that could be interpreted as prickly over-reactions. In 1953, after a noted "key conflict" relating to the forms for Florin's access to the department, he suggested, in his position as inspector, that the Academy should appoint a committee to investigate the conditions there. Selling found the committee to be biased and complained to several instances, but without getting a response. He also explained that the use of inspectors as well as the principalship of the Academy were outdated and should be investigated. Working conditions did not improve.

The Academy hired a lawyer to provide support on the issue and, after further twists and turns, the committee's inquiry was completed in the spring of 1954. One conclusion was that Selling should undergo a psychiatric evaluation, during which he was to be suspended from his job, because his

unsatisfactory way of handling it could be due to mental illness. The inquiry was initially kept confidential, and the case was dealt with rapidly, without Selling being able to respond to the committee's findings. However, he managed to be evaluated by an associate professor of psychiatry, who found no indication of illness. The Academy took the committee's stance on a medical evaluation, with reference to the right of authorities in public administration to prescribe these.¹¹⁰ Numerous members reacted to the way the case was dealt with, and almost one-third of the 39 who attended the meeting petitioned for the decision to be delayed until the first meeting in the autumn.

Selling protested, once more in vain. The psychiatrist recommended by the Academy of Sciences found that he suffered from *paranoia querulans* and should obtain a position at another principal, as his unhealthy activities could diminish under different circumstances. Selling presented certificates from two other psychiatrists who found him to be healthy, while they sharply criticised the first doctor's statement. After even more discussion, the case was sent to the Medical Board where, in 1956, the Board for Forensic Psychiatry stated that Selling was not ill. Eventually the case reached the Office of the Chancellor of Justice, which agreed with the Academy and, in 1957, took the case to court and demanded a new psychiatric evaluation, prison and dismissal from his position. The Svea Court of Appeal rejected the request for a psychiatric evaluation but, in 1958, after a much-publicised trial, Selling was found guilty of dereliction of duty, insulting behaviour towards a public official and defamation. He was cleared of other charges, but was to pay 50 day-fines and symbolic damages to Florin. The Office of the Chancellor of Justice took the case further and again requested a new psychiatric evaluation. In 1959, the Supreme Court in principle agreed with the former judgement, but the costs for Selling were considerably higher. In both instances, the judges were not in agreement.

THIS AFFAIR ENTAILED not only an escalating conflict between the Academy of Sciences and a professor at one of its institutions, but also conflicts within the Academy. These conflicts were reflected in public, where Selling's case received the general support of the liberal left-leaning press. Right-leaning papers mainly supported the Academy which, in a time of discussions about judicial corruption, appeared part of an older establishment. Tensions could arise within newspapers too, as when Academy member Gert Bonnier wrote to editor in chief of *Dagens Nyheter*, Herbert Tingsten, with a copy to the chairman, his brother Tor Bonnier, stating that he found the defence of a hopeless complainer unworthy of this leading newspaper.¹¹¹ Providing an exhaustive description of all the conflicting images in the media is impossible, but a few main themes in the reporting can be sketched out. It is the *image* of the Academy of Sciences that is of interest here, not what was fair or unfair in the story.

The interest of the press was aroused by the “key conflict” in 1953. The discussions were relatively general and related to authorities and the judicial system. Attention grew due to the decision about the psychiatric evaluation and suspension in the spring of 1954 and “the Selling affair”, with a definite article, was born. Interest grew until it peaked in 1957, when negotiations took place in the appeal court, after which it declined to almost nothing by 1960. The discussions also took up forensic psychiatry and the contradictory medical statements, but gradually came to focus on the actions of the Academy.

“Hardly flattering for the Academy of Sciences”, read the headline of an editorial in the liberal newspaper *Göteborgs-Posten* in the summer of 1954. “One has to hold a hand to one’s brow and wonder whether the Academy has confused the freedom that is the oxygen of scientific research with the arbitrariness that is the suicide of administration in academia.” The tone grew more acrimonious and, at the end of the year, the newspaper stated that the Academy’s attack on personal freedom had “a real taste of the terror regime of dictatorships”.¹¹² A member of the Liberal Party had interpellated the minister for justice about the regulation on the obligation of officials to be subject to psychiatric evaluation, due to the way the Academy had behaved towards Selling.¹¹³ This increased the level of attention even more. Another Liberal member of the Riksdag wrote a newspaper opinion piece, saying that he found more “petty coterie politics and infernal games of intrigue” than liberalism in this unfortunate story. “The further one enters into the Selling case, the more disturbing it becomes. One asks: How is it possible that an academy of sciences, gathering scientifically educated people, can display such a complete lack of democratic sense and democratic responsibility as in this case?”¹¹⁴

When the psychiatric evaluation was underway, the hired lawyer and the permanent secretary contacted Herbert Tingsten, the editor in chief, for a talk. He perceived this as an attempt to influence him without any intention to take responsibility for this, which he later explained in a letter that he simultaneously published in *Dagens Nyheter*.¹¹⁵ As the Academy had maintained such a low public profile, it was hardly prepared for this kind of public examination and criticism.

In the spring of 1956, Vilhelm Moberg gave a public lecture that Bonniers later published under the title *Komplotterna: Affärerna Unman och Selling*. The former was about an artist who, after a problematic divorce in the early 1930s, was appointed a fiduciary, a magistrate, whom he came to accuse of embezzlement. Unman was found to suffer from *paranoia querulans* and held at a mental hospital. Following numerous abandoned inquiries, the case became publicly known and, after almost two decades, the fiduciary was found guilty of multiple cases of systematic embezzlement and received a long prison

sentence. Moberg felt that this older affair had clear parallels to the more recent legal scandal. He presented it and drew his conclusions:¹¹⁶

“The Academy of Sciences is pilloried” has been one headline in a major Stockholm newspaper. Yes, now it is Professor Selling’s adversaries who have been morally condemned before the people. In truth, the gruesome interiors of one of our foremost scientific institutions have been exposed. This unpleasant story has been played out among the very highest academic circles, within the Royal Academy of Sciences itself.

A more material account was provided in the book *Falluckan på Riksmuseet: Statstjänstemans rättsäkerhet i belysning av Sellingaffären*, which was published the following year, 1957. The author was Axel Wersén, one of the many psychiatrists to make a statement. In his view, Selling had never previously displayed any abnormal behaviour and his actions during the affair were completely comprehensible reactions to the abnormal situation in which the Academy of Sciences had placed him. Wersén found many examples of abuse by other psychiatrists in the affair. The willingness of various actors to involve themselves in the affair based on their own agendas contributes to its complexity.

This tendency grew prior to the negotiations in the appeal court, when the syndicalist paper *Arbetaren* expressed itself almost conspiratorially: “Selling cannot be awarded justice because it would damage the reputation of persons and institutions that may not have suspicion cast upon them.” The press then presented a range of insider images that became public in court. For example, one of the Academy’s strongest internal critics provided his view of the meeting that decided to order a psychiatric evaluation: “I have never experienced an atmosphere such as that day at the Academy of Sciences. It was greatly reminiscent of the process at ancient witch trials. The decision was taken with great emotion from many members of the Academy.”¹¹⁷

One could say that Selling was convicted by the courts but cleared by public opinion. The state and the Academy of Sciences could also be presented as losers due to several claims being thrown out. Following the Supreme Court’s decision, which meant that Selling was to pay 33,000 kronor, there was a public fundraiser for him that collected 100,000 kronor.¹¹⁸

AFTER THE JUDGEMENT in the Supreme Court, Vilhelm Moberg wrote an article in *Dagens Nyheter*, “Who will make amends to Selling?”. Despite the doers of justice scrutinising all the actions of the accused, justice had not been done. Moberg saw the origin of the affair in the appointing of the committee that recommend a psychiatric evaluation – but nothing done by the Academy of Sciences had been tried in court, despite its actions being at the heart of the matter. He found it ominous that the Swedish legal system could



SAMPLE FISHING nets delivered to Kristineberg Zoological Station between 1913 and 1923.

“organise an attempt at the moral murder of a citizen without anyone being held accountable for it”.¹¹⁹

In a reply, Westgren explained that Moberg’s description was misleading because it left out decisive elements that were the start of the whole business, namely Selling’s behaviour. The Academy had not acted to remove him, but instead reacted to his treatment of the female curator, and had the wrongs in the department as its only motive. To this, Moberg responded that Westgren had himself left out the decisive element of the early events: the Academy’s decision to make Florin an inspector and then appoint the curator that he wanted, but not Selling.¹²⁰ In the history of this affair, we can see that daylight and shadow are differently distributed, depending on where you let the story start.

Later that spring, a zoology professor and Academy member presented a long text that focused on the process up to the decision on a psychiatric evaluation. The conclusion was that Selling had been judged without a hearing and that the Academy, in its position as an authority, had acted as both accuser and judge. This method of using administrative procedures to violate

basic legal principles “has greatly upset many among the Swedish public, and the Academy of Sciences has received particularly sharp criticism”.¹²¹ The entire Academy was guilty, despite a small group, supported by a hired lawyer, having decided the tactics. To try to win back its lost respect, it was proposed that the Academy should help to ease the financial difficulty in which Selling had been placed.

The administrative committee explained that the text did not actually require a response but, because it could appear misleading, an equally long document was written for the members. This dealt with the criticism by describing how various questions and documents were prepared, how Selling had had the opportunity to make a statement, how responsibility for the curator’s health made it necessary to reach a quick decision in May 1954. The Academy had acted as an authority should.¹²²

The management apparently justified the actions of the Academy of Sciences both outwards and inwards, and demonstrated no desire to apologise for them. The Selling affair was probably not only painful for its protagonist, but also for the internal critics who felt that a driving group, somewhat coup-like, had made the Academy responsible for actions they found reprehensible, as well as for the management who had to deal with the increasingly unwieldy affair and were consequently more or less the subjects of a public scandal.

The Academy’s relative isolation probably contributed to self-images and behaviours that appeared outlandish to outsiders. However, the institution’s legitimacy was not independent of its relationship to the world surrounding it. The media attention during this process entailed that information about the Academy was put into increasingly rapid circulation in public life. External actors became aware of it in new ways. For example, as we will see below, members of the Riksdag took the Selling affair as the basis of initiatives that came to alter the Academy. The affair gained significance through its repercussions.

Premonitions and endings

If we turn our gaze outward, the Cold War influenced the international relations of the times. Some people were shocked when, in 1957, the Soviet Union put a satellite into orbit around the Earth. Lajka the dog languished in Sputnik 2 the same year and, in 1961, Yuri Gagarin was the first man in space.

These events highlighted trends that we have followed above, as in the Kiruna case. In what is called Big Science, research had become large-scale and resource-heavy, more industrially organised in its cooperation between different scientific specialisms and levels of application. It was complex both horizontally and vertically; international while remaining national; a means and a goal in the race between nations, with a Nobel Prize as something of

a gold medal. Sputnik had tangible repercussions in the US. NASA was founded in 1958 and, a few years later, President Kennedy launched the Moon project that was ascribed national significance and granted resources on a wholly new scale.

These trends recurred with other dimensions in smaller nations, such as West Germany and Norway.¹²³ Scientists had conveyed ideas to politicians about the importance of science when building and defending the nation. Research into atoms and space had obvious relevance to defence policy, at the same time as science was important for the expanding welfare state and national prestige. But if researchers were to solve problems for the state, the state also had to solve problems for research. Science was allocated greater resources. But money not only liberates, it also ties the recipient to the giver. Issues of political governance and the freedom of research lay in the extension of the additional resources.

DEVELOPMENTS IN SWEDEN have many parallels to those in other countries. For example, the repercussions of Sputnik also reached Kiruna, where the Academy's research institution came to receive significant funding from the US Air Force, arousing press interest in the mid-1960s.¹²⁴ It is significant that the expressions "the atomic age" and "the space age" entered the Swedish language in the 1940s and 1950s, respectively, characterising the spirit of their times.

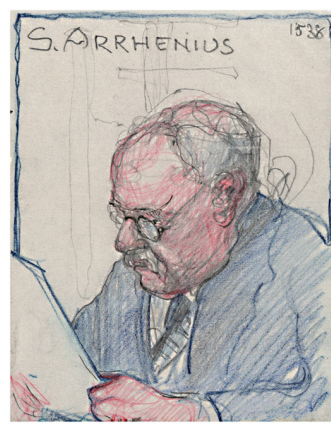
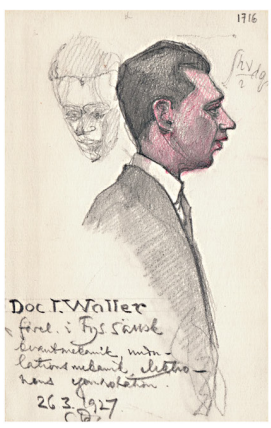
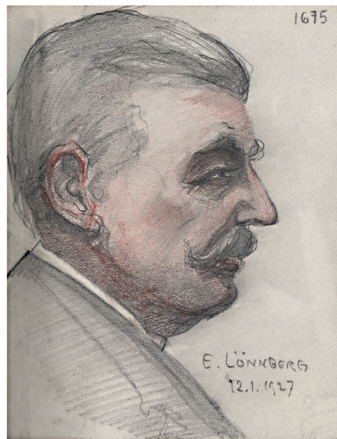
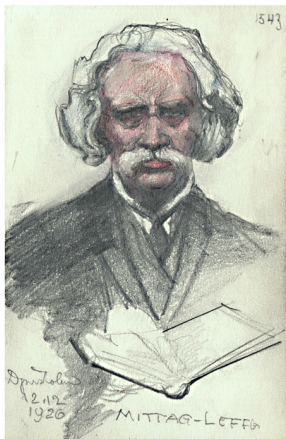
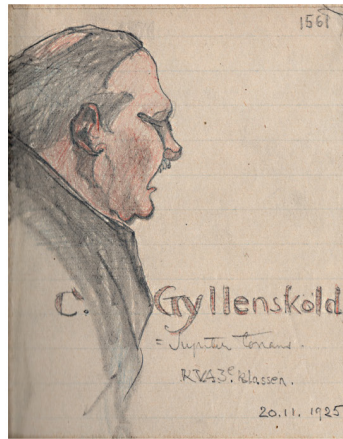
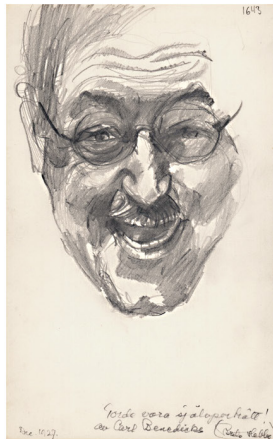
In the summer of 1954, Prime Minister Tage Erlander summoned researchers to the country house of Harpsund for discussions about the role of science in the bountiful future that the labour movement envisaged. The results were so positive that, the following year, the Social Democrats and the Swedish Trade Union Confederation organised a major conference called *Tekniken och morgondagens samhälle* [Technology and the society of tomorrow]. Several professors gave lectures, among them Torsten Gustafson, physicist and advisor to Erlander on research issues, biochemist and Nobel Laureate Arne Tiselius and economist Ingvar Svennilson, who was an expert on long-term economic planning. They and other participants presented familiar themes and tropes, such as investments in science being good investments for keeping the country ahead in competition. As usual in history, shiny technological optimism evoked its mirror-image twin of cultural criticism, such as in a statement by a director of studies for the trade union schools: "I hope that no one regards me as strange if, in this debate, I declare that I am looking for man behind the machine – if there will indeed be people behind the machines in the era of automation."¹²⁵ However, the prime minister was inclined to share the researchers' optimism.

Contacts were developed and the Swedish Government Research Advisory Board was established in 1962. In association with the founding of this

institution, the concept of “research policy” made its breakthrough.¹²⁶ It was heard again the following year, at the *Vetenskapen i framtidens samhälle* [Science in the society of the future] conference, hosted by the university chancellor at the newly opened Wenner-Gren Center. Gustafson, Tiselius and Svennilson were again present; they were Academy members and also influential members of the Research Advisory Board. They gave talks on the physical and biological sciences and on the connection between research and societal development. How bright the future seemed, if only the state fulfilled the needs of science, can be indirectly surmised from a comment by the representative of the humanities, renowned historian Erik Lönnroth: “What society, in all circumstances, owes humanists is not despising them because they cost less than other researchers.”¹²⁷ Lönnroth was chair of the Humanistic Research Council and a member of the Research Advisory Board, and later a member of the Academy of Sciences, as were most speakers at the conference, including Ragnar Edenman, the new minister for ecclesiastical affairs. He said that everyone agreed that research should be curiosity-driven. At the same time, the boost to resources meant that everyone was also interested in “the development of research being synchronised with the development of society and the citizens. The need for a more noticeable, to use the difficult to translate English expression, ‘science policy’ is apparent.”¹²⁸

We can see that the discussion was new and that people were grasping for words. It was also international. The same year as the conference, the OECD report *Science, Economic Growth and Government Policy* was published, with Ingvar Svennilson as one of the three authors. The report provided guidance for the member nations. As the title indicates, the message was, on the one hand, that research was a key factor behind economic growth, on the other that it was not an unexplainable force, but that it could be made the object of political planning and influence.¹²⁹

One complication in this context was that most state-funded research took place at higher education institutions, which also had teaching as a key task. When education was vastly expanded, it became more difficult to link it to research, but the association of both these tasks was central to the 1945 University Commission, which included Arne Tiselius. Optimism about development and visions for expansion were even clearer in the 1955 University Inquiry, with Ingvar Svennilson as one of the committee members. One report proposed significant modernisation of research and research education. The Academy of Sciences responded very positively in its statement. In 1959, major funding increases for this expansion were suggested in a government bill, immediately followed by a bill on taking Stockholm University College into public ownership. However, in a consultation statement a few years later, the Academy was cautious about the great influence that the “stakeholder interest” had received.¹³⁰





PHYSICIST AND METALLOGRAPHER CARL BENEDICKS was artistically inclined and his archive contains several hundred drawings of friends and colleagues, often done at Academy meetings or lectures. Postcard, above: Lise Meitner lecturing at the Swedish Chemical Society in 1945.

The state's growing obligations brought demands for better control of and planning for the use of resources. The Office of the Chancellor of the Universities and Colleges was founded in 1964, and the university chancellor – whose post had previously been an unpaid honorary position – as head of the new centralised authority, became the trustee of the government rather than the universities. The minister clarified: “The time when it seemed natural for the universities to function, if the expression is permitted, as the scholars’ San Marino, is past.”¹³¹ The institution known as the pro-chancellor, which had given bishops supervision of the state universities, had been disbanded in the 1930s, breaking the mediaeval ties between the church and higher education. After Olof Palme was appointed minister in 1967, his ministry changed name from ecclesiastical affairs to education. The influence of politics increased in

the “strong society” and the welfare state was consolidated during these “record years”, which also saw major reforms to both primary and secondary schooling.

We can see that a great deal changed rapidly at this time, and that the academics pushing this came from rather small circles; the actors in this network were generally Academy members and each other’s “best brother”.

One illustrative example is Arne Tiselius.¹³² As a student of The Svedberg he gained his doctorate in 1930 with a revolutionary biochemical thesis, then spent a year at Princeton University on a Rockefeller scholarship. When the scholarship ended, his situation was reminiscent of that in which Arrhenius and Svedberg had previously found themselves. Svedberg mobilised his influence to keep this scientific talent in Sweden and, in 1938, Tiselius was appointed the first holder of a grant professorship in biochemistry. The following year, he was elected into the Academy of Sciences, where he was a member of the Nobel Committee for Chemistry from 1947 to 1971. He came to be chair of the Nobel Foundation, and the Swedish National Committee as well as the International Union of Pure and Applied Chemistry. He became the first chair of the Natural Science Research Council, as well as a member of the Medical Research Council and the board of the National Defence Research Establishment. In 1948, Tiselius received the Nobel Prize in Chemistry, upon which he received honorary doctorates from respected universities, and the establishment of a new department of biochemistry in Uppsala was fast-tracked. As we have seen, he was also a member of several state committees that were important in the formulation of policy and the formation of institutions.

IN CONTRAST to the change processes in higher education, in which Academy members participated as key actors, the Academy itself did not undergo any major change. Established modes of working and meeting were passed down – exercises that could give an impression of timelessness.¹³³ Nor were the building and its contents touched, which led to a slowly progressing decay.¹³⁴ However, against the background of all the changes, not least the plans for a publicly run university in the Frescati area, in 1959, the Administrative Committee appointed a committee. This was to cooperate with the state inquiry into the Museum of Natural History, to which we will return shortly.¹³⁵

The committee sought to gain insight into and an overview of the activities and financial circumstances of the Academy’s somewhat autonomous institutions. It was difficult to have an opinion on individual parts of the expansive network of institutions. The discussions gravitated towards basic questions about the Academy’s role and its future in relation to strained finances. How should it relate to the state and the university? “I am afraid that if we now decline state participation and keep what the Academy can

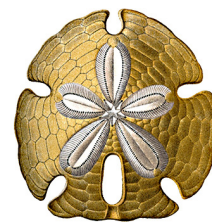
shoulder financially, we will anyway become dependent on the state the next time the almanac privilege is renewed. Our negotiating position with the state is therefore better now.” There were no easy solutions in what the committee, in 1961, presented to the Administrative Committee, which decided to appoint a new small committee.¹³⁶

Two years later, the Academy’s new president, physiology professor and later Nobel Laureate, Ragnar Granit, opposed this. In a memo, he clarified the problematics of the situation. For the future of the Academy of Sciences, it was necessary to discuss and take a stand on the choices it was facing. In a later memo he specified the need to modernise the organisation and used the Royal Society, which had no institutions, as a role model. The “small committee” was quietly dismantled. Instead, there were comprehensive revisions to the statutes which, as we saw in chapter 2, were adopted in 1966. At the same time, a committee was appointed – comprised of Granit, Sievert, Svennilson and Tiselius – to investigate the Academy’s tasks and organisational forms. It submitted its report in December 1968; we will return to this in the next chapter. Here, we can state that this work did not lead to any immediate reforms. Granit felt that Rudberg, as secretary, was very agreeable, but also very conservative and that he tried to avoid change. He hid the report.¹³⁷

CHANGES NEVERTHELESS OCCURRED, but due to external initiatives. In 1952, the management of national parks was transferred from the Academy of Sciences to the National Board of Crown Forests and Lands, but the Committee for the Protection of Nature still had plenty to do. Environmental issues became the subject of continued investigation in the tension between the ecological perspective and the attempts to balance different interests. In 1962, Rachel Carson’s *Silent Spring* was a wake-up call that was rapidly translated to Swedish. Five years later, the National Environmental Protection Board was established. Like research, the environment had become politicised and an issue, which as a policy area received its own administrative apparatus; environmental policy was a concept that, like research policy, had its breakthrough in the 1960s. Liberated from its role as an authority, the Academy was a freer actor, arranging symposia and debates, making the voices of scientists heard and lobbying for environmental values.¹³⁸

Other changes entailed the end of two institutional solutions that were considerably older than the Committee for the Protection of Nature.

THE SWEDISH MUSEUM OF NATURAL HISTORY was dealt with in 1955, in Riksdag motions that wanted to investigate its organisation, due to the ongoing conflict there. Their originator was a member of the Liberal Party, Hugo Osvald, botanist and professor at the University College of Agriculture who, the previous year, had interpellated the minister for justice due to the



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actions of the Academy of Sciences in the Selling affair. He did not think it was strange for disagreements to occur, but the current conflict stemmed from historical ambiguities in the organisation of the Museum of Natural History. The Academy's "insight and protection" was mostly exercised through its inspectors, who could have their own interests in the unit they supervised. In higher education, there was no equivalent to the inspectors; the institution of inspector was "a relict from past times, and must now be regarded as an anomaly". Additionally, the Academy had grown so much that many members were unable to participate in the processing of every case, even if state appointments of great importance to the future were at stake: "Naturally, there is a smaller group within the Academy that exercises the actual management with the authority of the Academy to support it." Also, many members had retired and had no special interest in the Museum of Natural History. Considering that activities were entirely financed by the state, the museum should be reorganised as an independent unit answerable to the Ministry of Ecclesiastical Affairs, without the Academy as an intermediary, in the same fashion as the Central Meteorological Office had been reorganised.¹³⁹

The Budget Committee compiled consultation statements. The Academy explained that it had realised that the organisation was unwieldy and that a committee was working on the issue, so there was no reason to appoint an inquiry. The committee and the Riksdag were of a different opinion.¹⁴⁰

The Museum of Natural History Inquiry was appointed in 1959, just after the Riksdag had decided to reform Stockholm University College and make it a state-run institution, Stockholm University, which would gradually move to the Frescati area. The directive spoke about coordination and planning for the rational use of available resources, and about negotiations between different parties.¹⁴¹ The inquiry presented suggestions for the Museum of Natural History, the Research Institute for Experimental Physics, the Swedish Museum of Ethnography, the Bergius Foundation and the library of the Academy of Sciences.

The first report was published in 1962 and dealt with the Museum of Natural History. In accordance with the directive, it recommended that supervision by the Academy should be discontinued. One main proposal was that the exhibition activities of the museum's various departments should be gathered in one building and more focused on outreach. To provide education suitable for the times, the exhibitions needed to arouse public interest in natural science, in humankind's dependence on and impact upon nature – and so encourage young visitors to pursue further studies. Another proposal was that research at the museum, with its seven professorships and around fifty research positions, should be transferred to the new university. Traditionally, activities had a focus on systematics, which the report said they should retain, even if the areas for the professorships could be re-evaluated.¹⁴²

The consultation bodies – including the Academy of Sciences – felt that the Academy’s supervision should end and exhibition activities should be developed. However, there were differing opinions about the issue of whether research should move to the university or whether the museum should remain a national institution for collections, research and exhibitions. Some felt that a national museum with no research of its own would be less dynamic. Others wanted to transfer the professorships, but also to reform the positions so that systematic biology did not squeeze out other specialisations.¹⁴³

AFTER REMINDERS from representatives of experimental biology, the Ministry of Ecclesiastical Affairs summoned five experts to produce a plan for the gradual reform of four museum professorships to university positions. The group was dominated by representatives of research in experimental cellular and molecular biology, including Arne Tiselius. The idea was to focus the limited resources on this research, in which Sweden was a leader and which had great potential for application, instead of spreading them across the older systematics and the modern ecology. The experts suggested that the positions should be transferred to the university and the “new” biology.¹⁴⁴

This bold proposal created criticism. For example, Åke Gustafsson, professor of genetics at the University College of Forestry and a member of the Research Advisory Board, wrote polemical debate articles. He explained that steering research in politically appealing directions was something new in Sweden: Lysenkoist intervention by the state. He attacked Tiselius, who had used his influence to benefit his own kind of research, to the detriment of scientific progress as a whole. Tiselius responded. He explained that unavoidable priorities had already been made; as resources were finite there were limits to the autonomy of the research community. “What Gustafsson regarded as a dangerous politicisation of science”, writes historian of science Anna Tunlid, “was part of a necessary research policy for Tiselius.”¹⁴⁵ Critics could also mobilise support from abroad, with statements from famous biologists who were distressed at what they had understood was brewing in Linnaeus’ homeland. In a bill in 1965, the government left the professorships at the Museum of Natural History alone. There were limits even for a key actor in research policy like Tiselius.

It should be added here that, at the same time, there was an inquiry into the complicated ties between the Academy of Letters, History and Antiquities, the National Heritage Board and the Swedish History Museum. A committee directive from 1961 regarded these ties as “an aged administrative organisation”. In 1974, after much discussion and many twists and turns, the principalship of the Academy, a body that was self-governing but nevertheless exercised government authority, over the Heritage Board came to an end. There were administrative and legal reasons for this, but also a reluctance to



MODEL OF AN ORE BODY in the form of an iron ellipsoid from Vilhelm Carlheim-Gyllensköld's collections. Following the introduction of the Thomas process at the end of the 19th century, the phosphor-rich deposit of iron ore in Kiruna became worth exploiting; the construction of a railway line, first to Luleå and, a few years later, to the ice-free port of Narvik, allowed the ore to be exported. Assessments of the size of the deposit were first made by drilling but, in a scientific dispute, Carlheim-Gyllensköld used geophysical methods in 1900–1907 and was able to establish that the deposit was a great deal bigger than older geologists wanted to believe. The iron model visualised the ore deposit, a magnetic disc stretching several kilometres down into the ground at a 60° angle.

let bodies outside of democratic control allocate public funding, as well as a desire to conduct cultural policy. The older category of cultural policy had acquired new meaning in the 1960s, and started evolving into a specific policy area, for which the establishment of an administrative apparatus was discussed. The concepts of culture and politics were affected by being brought together in cultural policy.¹⁴⁶ Boundaries were under renegotiation in more areas than those of science and the environment. In the 1970s, the state also

took over the principalship of the National College of Music and the National College of Fine Arts from the Academy of Music and the Academy of Fine Arts, respectively. The old royal academies came to be freed from or deprived of – however one wishes to regard it – duties that had become more wide-ranging and burdensome than when the links to the academies were once institutionalised.

THE ALMANAC PRIVILEGE was an institution that had continued along the same path for more than 200 years, but which came to an end in this period. At the start of the 20th century there had been some conflicts between Almqvist & Wiksell and other printers, but they were solved. In an article ahead of the 1939 bicentenary, one American newspaper noted, with some surprise, that the primary income of the Academy of Sciences came from a limitation in Swedes' constitutional right to freedom of the press. In 1945, in a letter addressed to the King in Council, the Academy stated that the reasons that had motivated the privilege in 1747 were as valid now as they were then, and that it needed the funding provided by the privilege to maintain the activities that were for the public good. To be well-prepared, the Academy would like the current twenty-year period to be followed by another one, for 1952–1972.¹⁴⁷ This extension was granted.

In 1951 and 1958, motions were presented in the Riksdag by Liberal businesspeople and newspaper owners who wished to investigate the privilege that was a monopoly. On the latter occasion there was a question, with regard to the legal fees incurred due to the Selling affair, about whether it was appropriate for the Academy of Sciences to receive large sums of money through a state monopoly but with no obligation to present its accounts. The Riksdag committee stated, with relief, as monopoly moneys had obviously been used for the legal costs, that the Academy had allowed state auditing of these funds. However, as an extension had already been granted, the issue was regarded as having been raised prematurely.¹⁴⁸

Another Liberal attack came in the 1964 Riksdag. Monopolies were depicted as a problem of principles and the 18th-century solution, with a royal privilege, as something hopelessly out of date. The Selling affair was again mentioned and it was maintained that it was better to promote research “in a direct manner” than to have funding that was dependent on sales figures.¹⁴⁹

In a consultation statement, the Ombudsman for Freedom of Trade and Industry said that it had received complaints about Almqvist & Wiksell and that an inquiry was welcome. This was not echoed by the Academy of Sciences or the *Svenska boktryckareföreningen* [Swedish Association of Book Printers]. In this case, the Riksdag committee did not find that a concentration on one printer was a disadvantage, stating the value of correct information and of support for Swedish research. However, because the monopoly

had been exercised in the same forms for such a long time, it was reasonable to investigate whether it could be adapted to modern circumstances.¹⁵⁰

The report was published in 1966 and proposed a system in which anyone who wished could print almanacs, but that the Academy would provide printers with correct basic information for their production and receive compensation from them. There were many consultation bodies and almost everyone had an opinion on the issue. This anachronistic monopoly system should be dismantled, they said, and considered it irrational to construct a complicated collection system for such a small sum. In principle, only the Academy of Sciences and Almqvist & Wiksell wanted to retain the system.¹⁵¹

In a 1969 bill, the minister for education, Olof Palme, found it reasonable not to extend the monopoly. He realised that such a decision would bring up questions about the Academy's position and tasks. At the same time, he emphasised that important work remained and needed to be dealt with in the future, not least in terms of outreach and international contacts. However, it was primarily up to the Academy itself to take a position on these matters.

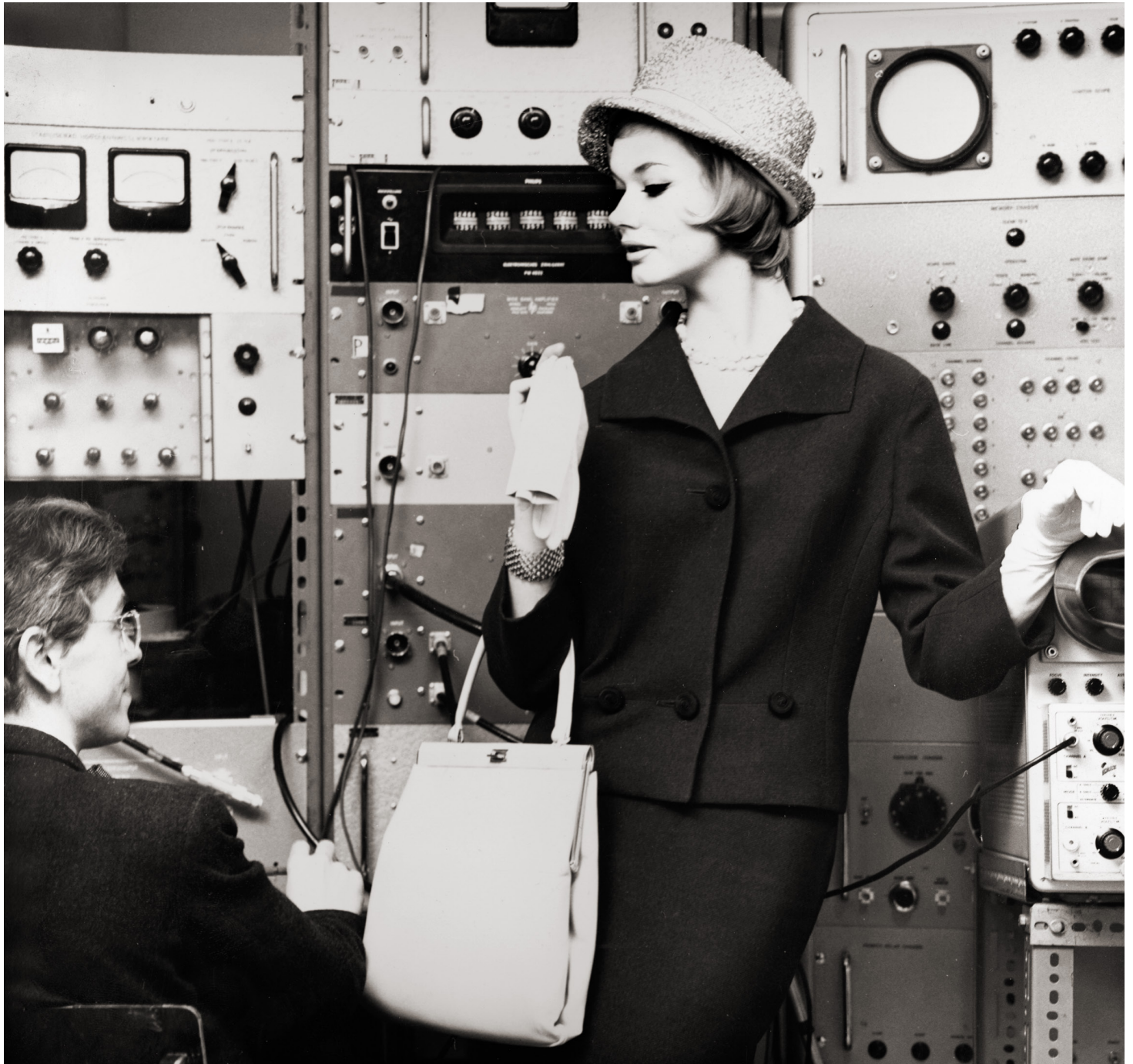
New Liberal motions were presented ahead of negotiations in the Riksdag committee, aiming at the Academy being assigned other sources of income before the monopoly was terminated. In another motion, a politician from the conservative Moderate Party instead wanted to extend the monopoly. However, the committee approved the bill. In the ensuing debate in the chamber, the Moderate politician then opposed the efforts to eliminate possibilities for the Academy of Sciences to act freely without governance from the state. And even if a royal monopoly appeared somewhat anachronistic, its removal was interference, as was not allowing the Academy to conduct its activities a little outside the state budget. A Social Democrat member of the committee wished to remind the chamber that the origin of the proposal was a motion from the right, and that all the consultation bodies except two wished to end the monopoly. The committee had also declared that it looked very positively on the Academy, he further stated.¹⁵²

The Riksdag voted in favour of the bill and the King in Council brought the privilege to a close.

Summary

The increasing importance of science for politics and the increasing importance of politics for science are significant processes through the short 20th century that we have covered in this chapter. These two aspects of the unfolding of historical change were mutually reinforcing. Society became strong and science grew big in the evolving welfare state.

For the Academy of Sciences, this development meant that it became the subject of growing political pressure, even if this never became so strong or



A MEETING OF TWO WORLDS was the theme for a fashion article produced in 1961. One world was that of fashion, spring fashion to be more precise, and the other was science, represented by milieus at the Nobel Institute for Physics. Photographer Stig Grip took many pictures on this occasion, but this one was not used in the article.

science so directly politicised as in some of the era's authoritarian states. There was a tug of war about the correct boundary between science and politics, between researchers' demands for freedom in exchange for "excellence" in science and external forces' demands for research with "relevance" in exchange for funding.¹⁵³ We have also seen how international relations in science were drawn into the politics of the era, which included a change in emphasis from Germany to the US. However, the Academy was not the passive subject of politics, but played an active part in these processes.

One way to influence politics was to submit consultation statements. The Academy's early significance as a general consultation body was partly because other bodies with national coverage had specialised missions, while the higher education institutions had wider expertise but a local footing. We saw how policy formation could take shape in the section on the creation of state-funded research councils. The Academy and individual members could participate in the processes that preceded the appointment of committees and the formulation of directives for inquiries. Academy members were then part of these committees, and could participate in the Academy's work on statements about their reports, to eventually take seat in the bodies proposed by the committees. We have seen that the most influential actors wore many different hats and had excellent opportunities to influence decisions that would influence their opportunities. The lines between the Academy, Science and Scientists were blurred. The Academy of Sciences was at the heart of numerous overlapping networks.

The Academy also gained influence through the character of official authority that it had obtained, even if the creation of new national scientific bodies contributed to undermining this position. This influence was not politicising in the same way as the committee work, but was political insofar as the Academy exercised power on behalf of the King in Council, for example on issues of nature conservation. The legitimacy of this exercise of authority was not independent of its relations with the outside world – no academy is an island – but its surroundings, like the Academy itself, acted as if the Academy of Sciences was part of the state administration. The Selling affair brought with it public attention of a new kind and scale. The public saw an image of the Academy that hardly promoted the continuation of its established path as an authority. We have seen that members of the Riksdag took initiatives that disrupted the institutional order and instigated a sequence of events that became formative in the history of the Academy. If the affair did not alone cause these processes, it was the starting point for, and an argument in, the political depiction of a problem. The Academy's insistence on freedom and autonomy, while being ratified and funded by the state, contributed to its status as an authority gradually appearing split or quasi-like. We have also noted that the Academy of Sciences was not the only royal academy with



WILHELM OSEEN BEING PAINTED by his son, the artist Jurd Oseen, outside the Nobel Institute in Frescati. Wilhelm Oseen took over the Nobel Institute after Svante Arrhenius, and was its director from 1933 to 1944.

somewhat diffuse tasks as an authority that was affected by the political transformations of the 1960s.

The time period of this chapter has also included changes in the forms and conditions of scientific work, which affected the Academy. The older interest in the astronomical sciences continued, but a comparison between the observatory in Kiruna and the first one in Stockholm shows how this interest required new tools. The Capri Research Station and the Third Geophysical Year illustrate how international cooperation took on new and greater proportions. The field sciences remained in cultivation, for example at the

stations in Kristineberg and Abisko. The largest institution, the Museum of Natural History, continued its survey work with a systematic focus. However, interest in the exact sciences was the most expansive during the period, which is probably linked to the Nobel prizes in chemistry and physics. It was also this field of interest that produced the most resource-heavy institution, relatively speaking: the Research Institute for Experimental Physics. During this period, a network of new and expansive institutions grew in the external organisation. At its heart was the Academy, like a spider in its web.

However, parallel to all these changes, much remained the same. For example, the institutional forms of the Academy of Sciences appear to be a bastion of stability in comparison with the dramatic events in the world around it. Activities within this framework also have seemingly timeless elements, such as influential members wearing different hats within their networks. In terms of beliefs, notions about the decisiveness of pure science and about imminent threats to curiosity-based research appear to be eternal, for example in consultation statements that emphasise the importance of strengthening basic research. Some critical opinions have also recurred during the period, such as the charge that a mass of administrative duties has squeezed out the primary activity, namely scientific exchange. Other apparently timeless worries have concerned the rising average age of the members and their representativeness in relation to current research. The Academy's senate-like appearance, with members who had often received orders and medals but who were no longer so active in laboratories, could affect the legitimacy of its claim to influence the conditions of today and tomorrow.

From the world outside the Academy, we have seen recurring criticisms of the royal privilege for almanac publication. The above presentation of how this was annulled differs from the image provided by Carl Gustaf Bernhard. He depicted how Olof Palme, as minister for education, made "his fateful decision" in the spring of 1969 and then, in a bill, announced "the insidious intention" of depriving the Academy of its privilege.¹⁵⁴ As we have seen, the origin of the process basically lay among Liberal members of the Riksdag who, on the basis of liberal principles and the Selling affair, opposed monopoly businesses. There was also massive opposition to the privilege in the consultation responses. Under these circumstances, any government would have found it difficult to argue for preserving a monopoly in the form of an 18th-century privilege, and the public documents present no indications that the minister for education or the committees dominated by Social Democrats were directly interested in pushing the issue. Bernhard dramatised the story in a manner that perhaps indicates how it was perceived from inside the Academy.