

THE YEAR IN REVIEW

YET ANOTHER PANDEMIC YEAR

Like 2020, 2021 was characterised by the coronavirus pandemic, which remains an ongoing issue in April 2022, although the majority of restrictions have been lifted in many European countries. So far, COVID-19 has led to more than 6 million deaths globally, and more than half a billion cases of illness have been registered. The actual number is probably much greater. In Sweden, over 18,000 people have died from COVID-19. Many of them, but not all, had underlying medical conditions. The pandemic hit our senior care facilities particularly hard.

Swedish authorities had counted on the pandemic fading out by the end of 2020, but the Sars-CoV-2 virus repeatedly mutated and thereby overcame the immunity developed by many people after infection by the original Wuhan variant. In the winter of 2020/2021, it was the Delta variant that ran amok. Millions of people around the world were infected, and restrictions were reintroduced.

In Sweden, mortality was high in November–February, when we came close to the death rate of the first wave from spring 2020. The subsequent waves did not result in such high mortality, probably in part due to the stricter recommendations and restrictions.

However, restrictions and recommendations were not the only factors to affect the pandemic's evolution, as the virus variants tended to become more infectious, while their virulence, or their ability to cause severe illness, reduced. The Omicron variant, which emerged in South Africa and spread globally in the autumn of 2021 and winter of 2021/2022, has proven highly infectious but led to fewer deaths than previous variants.



PHOTO: MARKUS MARGETIC

Göran K. Hansson, Secretary General of the Royal Swedish Academy of Sciences 2015–2021.

COVID VACCINES – A TRIUMPH FOR SCIENCE

Vaccination programmes are the most important factor when fighting the pandemic. Vaccines for Sars-CoV-2 were developed at record speed in 2020, underwent clinical trials in the autumn of 2020, and were introduced in practice in the winter of 2020/2021. They have reduced severe disease and mortality from COVID-19 in a remarkable manner. For the RNA vaccines, protection from severe disease and death is around 95 per cent, which is an excellent result for vaccines. The vaccines do not provide equally effective protection from infection, but a mild upper respiratory tract infection is vastly preferable to life-threatening pneumonia.

The development of vaccines against COVID-19 was a scientific triumph. Never before have effective vaccines for a serious disease been developed so rapidly. Researchers at many different laboratories around the world started this task in the late winter of 2020. Several strategies were tested – inactivated virus particles, virus proteins, harmless carrier viruses with added genes from Sars-CoV-2, and liposome drops with modified Sars-CoV-2-mRNA. The most successful vaccines have been the latter, the mRNA vaccines. They are quick to manufacture, offer a high level of protection against severe illness and have few side effects.

Three important conditions for the development of vaccines were a) the rapid isolation of Sars-CoV-2 and reading its gene sequence, b) identification of the spike protein on the virus' surface, which is important for the



PHOTO: KHUNATORNA/DOBE STOCK

Vaccines for Sars-CoV-2 were introduced for general use in the winter of 2021. The RNA vaccines are around 95 per cent effective against severe disease and death.

spread of infection and immunologically, and c) stabilising the delicate mRNA molecules by chemically changing the bases from which they are constructed.

All these approaches built upon several decades of research into genes, mRNA, proteins, viruses and the immune system. Naturally, at the Academy of Sciences, we can note how numerous discoveries that have been awarded the Nobel Prize provide a foundation for this work: Watson and Crick's discovery of the structure of DNA, which is the basis of all molecular biology; also the genetic code that was cracked by Holley, Khorana and Nirenberg, as well as techniques for reading the code, pioneered by Fred Sanger; for genetic cloning, pioneered by Paul Berg; and, of course, the discovery of mRNA, with contributions from Nobel Laureates Crick, Brenner, Jacob, Monod and others. There are also studies of virus structure, which was investigated by Delbrück, Hershey, Luria and others; genetic functions in viruses and cells, where Jacob, Monod and Lwoff made revolutionary discoveries; and the structure of RNA molecules, where researchers such as Ramakrishnan, Steitz and Yonath have made major contributions. Not should we forget important technical breakthroughs such as PCR (Mullis), the structure of proteins (Kendrew and Perutz), techniques for separating and analysing large molecules such as proteins and RNA (Svedberg and Tiselius), and the recent discovery of genome editing (Charpentier** and Doudna).

To produce a good vaccine, we also need to understand how the immune system reacts to molecules and viruses that enter the body, and here we have another series of discoveries and discoverers, from Metchnikov and Ehrlich, who discovered the basis of the immune system in the early 1900s, via the discovery of genes that govern immune reactions (Benacerraf, Dausset and Snell), to how immune cells “see” foreign substances (Doherty and Zinkernagel), how antibodies develop (Tonegawa, Köhler and Milstein), and how congenital and acquired immune reactions interact to protect us from pathogenic microorganisms (Beutler, Hoffmann and Steinman).

The recurring pattern is that basic research, that may initially appear of little use, enables the development of hugely beneficial applications, in this case vaccines that slow a plague that threatens us all. Knowledge benefits humankind.

THE ACADEMY OF SCIENCES PROVIDES EXPERTISE

The Academy of Sciences has provided facts and scientifically founded assessments during the pandemic years. Information texts have been published on our website, and video conferences have been organised at which experts have informed decision-makers about the virus, the disease and its effects.

**foreign member of the Royal Swedish Academy of Sciences

Efterlyser expertgrupp för framtida pandemier

Av TT

KVA:s slutrapport: Vården behöver utvecklas inför nästa pandemi

Vetenskapsakademiens mottagn

Expertgrupp vill se oberoende expertenhet vid pandemier

”Det här är en beteendepandemi”

DN 2/12 2021. Vetenskapsakademiens regeringens och Folkhälsomyndighetens coronastrategi är brännande. Det är väl lärdomar framåt.

CORONA
Expertgrupp munskydd

COVID-19

KVA vill se oberoende

Expertgrupp: Vaccinet räcker inte mot viruset

Efterlyse för fram

Av TT

Jan Nilsson i KVA

Over the year, the Academy's Expert Group on COVID-19 presented five interim reports and a final report.

In the autumn of 2020, we appointed an Expert Group on COVID-19. Its task was to inventory the state of knowledge about the virus, the disease and its spread in the community, and to provide advice for future pandemics and similar situations. However, it was not intended to review the actions of the state and public authorities during the pandemic; for that purpose, the Swedish Government appointed a specific coronavirus commission with the emphasis on law and economics. This included Academy Member and economist Torsten Persson.

The Academy of Sciences' Expert Group consisted of seven leading experts. It was headed by microbiologist and former secretary-general Staffan Normark*, and included pharmaceutical chemist and former university vice-chancellor Anders Hallberg*, virologist Ari Helenius, microbiologist Jan Holmgren*, immunologist Gunilla Karlsson Hedestam*, former state epidemiologist Annika Linde and specialist in internal medicine Jan Nilsson*. There was an affiliated reference group with experts in fields such as immunology, virology, epidemiology, psychology, statistics, chemistry and physics.

The Expert Group presented six interim reports, which received considerable media attention and were hotly debated. The first covered paths of infection, establishing how airborne infection is a very important route for Sars-CoV-2. Naturally, this illuminated the need for face masks and good ventilation to reduce the risk of infection. Following the report's presentation, the Public Health Agency of Sweden recommended the use of face masks on public transport.

*member of the Royal Swedish Academy of Sciences

Other issues that were examined included the virus' characteristics and how they are changed by mutations, the protective effect of vaccines, people's behaviour during the pandemic and how this can be influenced, and the lack of knowledge about the long-term complications of COVID-19.

The Academy's Expert Group presented their final report at a press conference in the Academy building on 30 November 2021. In addition to a summary of all the material analysed in the interim reports, the final report included concrete recommendations for use in future pandemics. The Expert Group emphasised the importance of forceful measures, such as quarantines and extensive testing, at an early stage, stating that they are decisive in a pandemic's development. They also highlighted the importance of broad education and training, good coordination between the healthcare regions and between clinical and academic laboratories on testing, well-organised vaccination programmes, and the need to work across national borders and learn from each other.

Finally, they proposed that Sweden should establish an independent expert unit that can provide scientifically founded advice to the government and public authorities. There is an obvious need for this, as the responsible authorities do not have a high level of scientific expertise. Therefore, Sweden's leading experts in relevant areas should be included, and its task should be to provide decision-makers with information and advice, but not to make decisions itself. Naturally, the Academy of Sciences is willing to help if and when the Government wants to establish such a scientific expert unit.



The Expert Group on COVID-19 presented its final report at a press conference on 30 November 2021.

SWEDISH RESEARCH DURING THE PANDEMIC

Swedish research continued during the pandemic. Experiments and analyses were conducted, and scientific reports published. Like other societal sectors, people did their best to prevent activities coming to a halt but, to some extent, this did involve treading water. Informal scientific exchanges did not happen because people were unable to meet to share ideas and instead had to communicate digitally. Some types of study were unable to start, and some analyses and experiments were put in hold until the pandemic receded. All meetings here held digitally, from research group meetings to international congresses. There was a downturn in scientific activity in 2020 and 2021, but a surprising amount was completed in spite of everything. Research did not stand still during the pandemic, neither in business nor at universities.

The same applied to education. University lecture halls, student laboratories and seminar rooms were empty for almost two years, and teaching moved to the internet. University activities continued, albeit in different ways. Students and teaching staff made huge efforts to maintain the volume and quality of education, but it was inevitable that those who were studying during the pandemic did not get completely the same education as previous cohorts.

THE ACADEMY CONTINUED ITS WORK DURING THE PANDEMIC

The same rules applied to the Academy of Sciences as to other workplaces and activities during the pandemic. In March 2020, the Academy building closed for external activities, its members participated digitally and, as far as possible, staff worked from home. We were unable to reopen the building until April 2022, and it has been joyous to see it filled with members, staff and visitors after being empty for such a long time.

Digital meetings have entailed huge challenges for members and staff, and especially for our IT manager, Peter Jacobsson. The Academy has exceptionally stringent confidentiality requirements because we administer financial aid and, in particular, because we award internationally renowned prizes, foremostly the Nobel Prizes. By working with our IT manager, the secretaries and administrators for the Nobel committees were able to overcome the difficulties, and we were able to decide upon and announce our major prizes, just as in normal years.

The Academy's open lectures were transferred, like all other outreach activities, to the internet. Fortunately this was a success; interesting subjects and fantastic lecturers meant we were able to attract hundreds of participants to every lecture. Gunnar Wetterberg had the largest audience when, on 21 April, he talked about the growth, progress and societal influence of Swedish engineering.



Gunnar Wetterberg's Academy lecture, "Ingenjörerna", was held remotely on 21 April and can be viewed via www.kva.se

SCIENCE SAYS – A NEW INITIATIVE

On the president's initiative, in 2021 the Academy established a new publication series, *Vetenskapen säger* (Science Says). In it, we discuss current issues and present the state of knowledge for an interested general reader. So far, we have published three booklets in partnership with Stiftelsen Natur & Kultur. The first was issued in April and was about vaccines, a hot topic during the coronavirus pandemic. This was followed by an updated summary for schools about vaccines. They provide lots of information about how vaccines are produced and tested, their historical use from the eighteenth century onwards, and how the modern RNA vaccines work. The booklets were produced by a group of vaccine experts led by Ann-Mari Svennerholm, and are available digitally.

The third booklet covers another important issue, the climate. It was published just prior to the COP26 climate change conference in Glasgow, and describes how the climate is created by the interaction of the atmosphere, landmasses, oceans, polar areas and the biosphere, which is the Earth's living organisms. It has information about the greenhouse effect, climate change and global warming. The experts responsible for the booklet were led by climate researcher Deliang Chen.

REWARDING OUTSTANDING CONTRIBUTIONS TO RESEARCH – GLOBALLY...

Despite the pandemic, we were able to continue our work on rewarding outstanding contributions to research, with prizes, grants and research funding. The Nobel Prize in Physics 2021 recognised the climate researchers Syukuru Manabe and Klaus Hasselmann, along with theoretician

Giorgio Parisi, for their contributions to the understanding of complex physical systems. The climate is one such system, and the researchers' work has made it possible to predict climate changes such as global warming.

The Nobel Prize in Chemistry was awarded to Benjamin List and David MacMillan for the development of asymmetric organocatalysis, a technology that may lead to a more environmentally friendly chemical industry and more efficient pharmaceutical production. Catalysis is not an esoteric chemical phenomenon; calculations show that around one-third of global GDP is based on catalysis, so their discoveries thus have enormous consequences.

The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel went to David Card, Joshua Angrist and Guido Imbens, three economists who have developed methods for clarifying cause and effect in the social sciences. Naturally, there are many applications for this knowledge, and the researchers have themselves made important contributions regarding labour market issues.

In 2021, as in 2020, the Nobel Prize Award Ceremony was held as a hybrid ceremony. Due to the pandemic, inviting the Laureates and their companions to a large international gathering in Stockholm was felt to be inappropriate, so instead they received their prizes at home. A small ceremony was held at Stockholm City Hall, where screens showed the prizes being awarded. There are now plans for a "proper" Nobel Prize Award ceremony in December 2022, and the Laureates for 2020 and 2021 will also be invited to Stockholm.

The 2021 Crafoord Prize was awarded for discoveries about polyarthritis, which encompasses rheumatic diseases



The Academy of Sciences launched a new publication series in 2021, Vetenskapen säger. In it, we discuss current issues and present the state of knowledge for an interested general reader.

and their underlying mechanisms. The recipient was Dan Kastner, who discovered how autoinflammatory diseases arise and has thereby taught us a lot about inflammation. Like 2020's Crafoord Laureate, the mathematician Enrico Bombieri, Kastner was celebrated at the Crafoord Days in April 2022, when the 2022 Crafoord Prize was awarded by HRH The Crown Princess. Sadly, the 2020 Laureate in astronomy, Eugene Parker, passed away before the award ceremony was held.

The Sjöberg Prize for 2021 was awarded to Benjamin Ebert. His research is opening up new opportunities for treating blood cancer and is believed to be of huge importance in caring for cancer patients.

In 2021, the Aminoff Prize recognised research into biochemical structures. It was awarded to Elena Conti, Patrick Cramer and Seth Darst, who have all made important contributions regarding RNA, a molecule of great current interest, not least in the field of vaccines.

...AND IN SWEDEN

The Academy of Sciences is delighted to honour major Swedish contributions to research, and to support Swedish researchers in the middle of their careers, when funding is most needed. We do this in partnership with foundations that provide research funding; they contribute the money and we are responsible for selecting the recipients.

The Göran Gustafsson Prize has been awarded since 1991 and is given to young researchers, no older than 45. The receive both a personal prize and a significant research grant. Like previously, in 2021 it was awarded to researchers in mathematics, physics, chemistry, molecular biology and medicine.

The Knut and Alice Wallenberg Foundation, one of the biggest private research financiers in Sweden and in Europe, has several major programmes that provide outstanding young researchers with superb opportunities. The biggest of these, Wallenberg Academy Fellows, has recruited 230 leading researchers to Swedish universities, many as international recruitments, since it was established in 2012. The Academy of Sciences, along with four sister academies, is responsible for selecting candidates, as well as organising a mentoring programme for participants. In 2021, 27 new fellows were appointed, and 12 received extended funding. More senior researchers have been appointed as Wallenberg Scholars and a specific programme for mathematics supports the enhancement of Swedish mathematics research. The importance of these programmes for Swedish research and individual funding cannot be overstated, and participation in this work is a high priority for the Academy of Sciences.

The Ingvar Lindqvist Prize has a special place in the hearts of the Academy's members. It is awarded to teachers in primary and secondary schools, recognising those who

>>

work with enthusiasm, new ideas and engagement to encourage the pupils' interest in mathematics and natural science. The prize was founded in 1991 and named after our former president Ingvar Lindqvist, who was passionate about schools and education. In the years 2016–2022 it has been funded by the Kjell and Märta Beijer Foundation, under the heading of the Beijer Foundation's Teaching Prize in Memory of Ingvar Lindqvist.

Last but not least, every year the Academy of Sciences awards numerous prizes, grants and medals to deserving individuals. These could be researchers, inventors, decision-makers, authors or research financiers, and it is often the honour and not the prize money that is the most important. Among 2021's highly deserving prize-winners I would like to mention Sven Mattisson, who led the development of Bluetooth communication technology. He received the Adelsköld medal, which the Academy awards every tenth year for "particularly important and beneficent inventions and works". Previous recipients include Thomas Alva Edison (electric light bulbs), Baltzar von Platen and C.G. Munters (refrigerators) and Erik Jorpes (heparin).

STAFF CHANGES AT THE ACADEMY'S SECRETARIAT

In the spring of 2020, chief financial officer Lisbeth Wallin left the position she had held for 19 years. We were forced to take in a consultant for financial issues while waiting for the position to be filled, but Gullvi Edlund took her post as new chief financial officer in August.

The allocation of responsibilities at the Secretariat was revised when Lisbeth Wallin left her post. The role of HR manager was assumed by Lena Widerberg, formerly responsible for HR at the Secretariat.

Service functions were reviewed, and we found it necessary to remove the continued staffing of our reception desk, which had previously occupied two people, as well as the role of event coordinator. Instead a new position was established, that of service coordinator, which is held by Mario Greger.

Issues relating to facilities and internal services were transferred from the economy unit to the operations unit, headed by executive director Per Hedenqvist. Facility manager Jonas Lif is responsible for the line management of staff in facilities and internal services.

New members of staff who have been recruited over the year are Louise Sjöholm (committee secretary), Amanda

Walldoff (committee secretary) and Lotta Johansson (whose duties include assisting the Sjöberg Prize Committee).

INTENSE ACTIVITY AT THE ACADEMY'S INSTITUTES – AND FINALLY A NEW PROFESSOR BERGIANUS

Institut Mittag-Leffler was forced, as others were, to work according to the restrictions entailed by the pandemic. Fortunately, it proved possible to maintain a programme of activities despite this and in the summer of 2021 some meetings were held physically with the observance of careful safety regulations. This was greatly appreciated. The hope is that normality will soon return to the institute, which is a world-leading centre for mathematics research and conferences.

The Beijer Institute of Ecological Economics and the research programme in Global Economic Dynamics and the Biosphere were at the centre of much debate about global sustainability issues during the year. Their work has basic funding from the Kjell and Märta Beijer Foundation and the Erling-Persson Family Foundation and, in competition, the researchers also receive significant funding from national and international sources. During renovations to the Academy building, activities moved to the "Vinkelhus" (corner building) on the Academy campus in Frescati.

One major task for the Beijer Institute was participating in the organisation of the scientific programme at the Nobel Prize Summit – Our Planet, Our Future – a hybrid meeting in April 2021, for which the Nobel Foundation, the Potsdam Institute for Climate Impact Research and the U.S. National Academy of Sciences were the main organisers. They were also very active at the COP 26 in Glasgow in the autumn.

The Center for History of Science continued its restructuring, which was initiated after an evaluation in 2019/20. Resources are being built up for digital archive research and a series of video lectures were also undertaken. As part of a partnership project between several European scientific academies their role in the twentieth century was discussed. Work has continued despite renovation to the premises and some disruption due to the reconstruction of neighbouring premises.

The Swedish Institute for Global Health Transformation, SIGHT, has a major task in The Lancet-SIGHT Commission. A few years ago, in partnership with the London-based scientific journal The Lancet, the initiative was taken to establish a commission to review health issues

from a global perspective and in relation to gender equality and political conflicts. The commission comprises 25 experts from different fields and geographic regions, and is headed by the former President of Finland, Tarja Halonen. Its secretariat is based at SIGHT's offices in the Academy of Sciences, and intensive work is underway to produce the final report. SIGHT is also reviewing its organisation going forward, and is planning to discuss the issue with management at the Academy of Sciences in 2022.

The Academy's oldest research institution is the Bergianus professorship, which was founded on the Bergius brothers' donation to the Academy at the end of the eighteenth century. This included the Bergielund garden in what is now Vasastan in Stockholm, and Peter Jonas Bergius's will stipulates that "a learned and skilful man, in the quality of Professor, should be placed over the entire establishment". At the end of the nineteenth century, the garden moved to the Frescati area on the eastern shore of Brunnsviken and, in the mid-twentieth century, the horticultural school that was previously part of the activities of the Bergius Botanic Garden was closed. Following a governmental decision, the Bergius Botanic Garden was transferred to Stockholm University in 1969. Since then, the only task of the Bergius Foundation has been to fund the professorship in botany and its associated research activities.

The previous Professor Bergianus retired in 2014; since then, we have worked to appoint someone to the professorship and make it attractive for today's botanical researchers. The situation was complicated by a number of agreements and permutations that have arisen over more than two centuries, and which limit the courses of action open to the Academy.

We have consulted extensively with representatives from Stockholm University to find a good solution within the given framework, and established each party's commitments in an agreement that was signed in the spring of 2021. The Professor Bergianus is appointed and employed by the Academy, which funds the salary and operating costs from the Bergius Foundation's returns. The professor is affiliated to the university for research at the Department of Ecology, Environment and Plant sciences, has laboratory premises there, and supervises doctoral students at the university.

The professorship was advertised once the agreement had been signed, and there was a strong field of applicants. After the usual expert procedures, it was decided that Professor Hanna Johannesson from Uppsala University was the strongest candidate for the position. She was offered

the position, accepted, and will assume the role of the new Professor Bergianus in 2022. It was a particular pleasure for me that one of my last tasks as Secretary general was to sign the employment contract for Professor Johannesson. Through her, we have an outstanding researcher in the important post of Professor Bergianus.

GOOD FINANCES DESPITE THE PANDEMIC

The Academy's finances were good throughout 2021. Our costs for increased digital activities were balanced by reduced physical meetings. New investments were made in our server capacity. A water leak in the server room led to unexpected expenses, but they could be dealt with within budget. Towards the end of the year another position as IT technician was advertised, to manage our increasing needs.

The Academy's equity grew well during the year, thanks to wise investments and excellent market trends. Our equity is co-managed with 98 foundations, and the total market value of the portfolio increased from SEK 2.77 billion at the start of the year to SEK 3.67 billion on 31 December 2021. Of this, SEK 829 million were the Academy's equity (SEK 662 million at the end of 2020) and SEK 2.84 billion were the foundations' equity (SEK 2.05 billion in 2020). Our equity is invested in shares (67.1%, of which 46.3% in Swedish shares), traditional interest-bearing securities (9.9%), corporate bonds (5.0%) and other investments (17.9%). Dividends were SEK 53.9 million (SEK 46.1 million in 2020). Returns including capital gains were 31.64% and 34.2% for equity and foundation capital respectively, and exceeded the benchmark by 6.5% and 9.1% respectively.

Pensions are a major and important commitment for most companies and organisations, and the Academy is no exception. We had a defined benefit pension plan until 2004; after this the Academy moved to a defined contribution pension plan. Defined benefit pensions comprise debt that changes from year to year, depending on the interest rate, the composition of the pension pool and other factors. This makes the debt difficult to calculate. Its size means that it has a considerable impact on our financial position and in 2020 the changing pension debt led to a SEK 9.8 million reduction in our result.

To avoid future unexpected negative effects, the Academy Board decided to insure against the debt caused by the defined benefit pensions. An agreement was entered with the SPP pensions company in the autumn of 2021, and it took over the pension debt for a one-off payment of SEK 82.1 million. This solution facilitates more certainty in

>>



The reception desk at the Academy of Sciences.



The new Beijer Hall under construction.



The Beijer Hall.



The Linneaus Hall.

PHOTO RECEPTIONEN, BEJERSALEN, LINNEUSALEN, MARKUS MARGETIC, PHOTO THE NEW BEIJER HALL UNDER CONSTRUCTION, THE ROYAL ACADEMY OF SCIENCES.

our financial planning and reduces the risk of unforeseen pension costs that weigh down the balance sheet.

ACADEMY PROPERTY – JOYS AND WORRIES

The Academy of Sciences' property portfolio represent significant capital but, despite this, loses money. The financial benefits of being in our own property are balanced by the expense of maintaining listed buildings that are more than a century old. Many of the properties once owned by the Academy were sold or transferred several decades ago, and the old Stockholm Observatory was sold to the City of Stockholm's property company a few years ago. However, we still have properties that cause considerable expense without the equivalent income, particularly in the Bergius Botanic Garden and its surroundings.

In accordance with the previous decision of the Academy to dispose of property that is not of central importance to our activities, we initiated the sale of land and buildings in the northern section of the Bergius area. This is land that is primarily car park and buildings that are now, along with the land they are built on, leased to the Plantagen gardening company. We are now selling this property to Plantagen's parent company, which will provide valuable income for Academy activities.

The major refurbishment of the Academy building in Frescati is now complete. The entire ground floor has been completely renovated, with the aim of painstakingly restoring the early twentieth-century milieu while also installing modern audio-visual technology, making the premises optimal for modern conferences. The furniture was largely replaced, and new chairs ordered after Axel Anderberg's drawings from 1910. Major efforts were made to improve the acoustics of the Linnaeus Hall and the Nobel Room. A specific Members' Room was created, where Academy members can work and rest while they are visiting the Academy building.

The Session Hall had a careful facelift and a comprehensive change to its audio-visual facilities. A large LED screens allows us to present high-resolution images and films with excellent colour reproduction, which is vital for presenting the Nobel Prizes to the world's press every year.

We had to build a new auditorium, to replace the dilapidated Beijer Hall from the 1970s. It was necessary to dig down through the foundations to obtain a modern, attractive space with fanned seating that encourages scholarly discussion. The LED screen in the new Beijer Hall

is gigantic, and the sound technology, which uses 'voice lift', facilitates comments from the audience without the need for microphones.

At the same time, the foyer outside the Beijer Hall received a much-needed extension, so we now have a social area for coffee breaks and informal chats at conferences and symposiums. The architect, Åsa Machado, has created a modern conference setting in this wing, while retaining the magnificent Neo-Baroque style of the main building. The furnishings and colour choices make the historical areas inviting and the new areas stylish.

In association with the renovation, conference rooms and foyers have received new names that honour members who have made great contributions to the Academy and to science.

CONCLUDING WORDS

The Academy of Sciences welcomed a new Secretary General on 1 January 2022. Biologist Hans Ellegren, from Uppsala, took over and, as befits my age, I retired after almost seven years in the post. My time as secretary General has been full of challenges and joys, of urgent projects and of meetings with skilful and enthusiastic staff, Academy members and external partners. Working as Secretary general of the Academy of Sciences has been a privilege, and I am grateful for the confidence you have demonstrated in me. I feel sure that activities will achieve new heights with Hans Ellegren as my successor.

Göran K. Hansson
Secretary General 2015–2021