We Must Fight the Threats to Our World with Knowledge

The Nobel Prize stands for enlightenment, humanism and international cooperation. These values are more important now than ever. We live at a time when prejudice and outright fabrications are gaining ground at the expense of knowledge. A time, moreover, when human rights are challenged and many live under a constant threat of violence.

Our digital society has increased the opportunities for bringing the world around us closer. Information and knowledge are disseminated faster and more widely than ever. That presents opportunities for a more enlightened world. Nevertheless, it is becoming clearer that we must be on our guard against a proliferation of myths, misconceptions and lies. We can no longer take it for granted that people believe in science, facts and knowledge.

An Inconvenient Truth, the book by Nobel Peace Prize Laureate Al Gore, was released 10 years ago and clearly showed that knowledge must be translated into action. Still, the climate issue is an example of how leading politicians in both Europe and the United States win voters by downplaying and denying science-based knowledge. May-Britt Moser is one of the Nobel Laureates who have recently stated that scientists “in this post-fact era” must win public trust and ensure that science is not only reliable, but also easily accessible.

Critical investigation and questioning is an important part of the essence of science. Many creative and courageous Nobel Laureates have led the way in this respect. Alfred Nobel understood the power of example. Good role models demonstrate in word and deed that it is possible to understand the world and make it better. They confirm that we can take on the greatest challenges of our time. This is an important starting point for the public activities planned in a future Nobel Center. It is a place where every visitors’ questions can contribute to new answers and a better world, in ways both large and small.

In the following pages we review the past year. We present our various activities and inform you about our events, exhibitions, digital channels, educational activities and inspiring meetings. Meetings among Nobel Laureates, students and decision-makers. All with the common denominator of, in keeping with Alfred Nobel’s vision, promoting the greatest benefit to mankind.

We hope you enjoy your reading!

LARS HEIKENSTEN
EXECUTIVE DIRECTOR
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The Nobel Prize and the Nobel Laureates’ contributions to the greatest benefit to mankind is the starting point of all activities in Nobel Center. Visitors from all over the world will be offered a wide range of public activities such as school programmes, exhibitions, scientific seminars, public discourse and events of various kinds. A unanimous competition jury selected David Chipperfield’s and Christoph Felger’s elegant and timeless building as the winner in the Nobel Center architectural competition in April 2014.
"I am amazed at how this new field of topological matter seems to have excited and inspired a whole generation of young physicists."

DUNCAN HALDANE IN HIS BANQUET SPEECH
The 2016 Nobel Laureates

THE NOBEL PRIZE IN CHEMISTRY 2016

WAS AWARDED TO

Jean-Pierre Sauvage, Sir J. Fraser Stoddart and Bernard L. Feringa

“for the design and synthesis of molecular machines”

WE CAN IMAGINE that the components of the smallest machines could be molecules. The first molecular machines have been constructed through the efforts of Jean-Pierre Sauvage, Fraser Stoddart, and Bernard Feringa. For a machine to function, its parts must be able to move relative to each other. In 1983, Sauvage managed to achieve this by connecting two ring-shaped molecules into what is called a “catenane”. Molecules are often bonded together in such a way that atoms share electrons. In catenanes, however, the molecules are linked like a chain, where the links can move relative to each other. In 1991, Stoddart developed a “rotaxane”, a ring-shaped molecule threaded over another molecule that functions like an axle. In 1999, Feringa constructed a molecular motor by making a molecular rotor blade continuously spin in the same direction. In the future, molecular machines could be used for new materials, sensors, and energy storage systems.

THE NOBEL PRIZE IN PHYSICS 2016

WAS AWARDED TO

David J. Thouless, F. Duncan M. Haldane and J. Michael Kosterlitz

“for theoretical discoveries of topological phase transitions and topological phases of matter”

THE MATTER THAT MAKES UP OUR WORLD occurs in different phases: as a gas, liquid or solid. There are also unusual phases, such as the superconductivity, when electric current flows without resistance, superfluidity, when a fluid flows without resistance, and unusual types of magnetism. Such phases occur primarily at very low temperatures or in very thin layers. To describe these phases and phase transitions, David Thouless, Duncan Haldane, and Michael Kosterlitz used the concepts of topology, a branch of mathematics. Topology is about shapes, including objects with different numbers of holes, and is suitable to describe certain incremental changes. During the 1970s and 1980s, the Laureates were able to provide better explanations of superconductivity, sudden shifts in electrical conductivity in thin layers, and magnetic properties of chains of atoms in certain materials. In the future, these results may contribute to the development of new materials and electronic components.
THE NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE 2016

WAS AWARDED TO

Yoshinori Ohsumi

“for his discoveries of mechanisms for autophagy”

**CELL COMPONENTS ARE NOT JUST FORMED**, they are also broken down and reused by the cells. The process, called autophagy, was discovered in the 1960s. At the time, researchers observed how cell components were enclosed by membranes, forming so-called vesicles. These were then transported to the cell’s stations for metabolization: lysosomes. The mechanisms of this process were mostly unknown until the early 1990s, when Yoshinori Ohsumi conducted a series of groundbreaking experiments with yeast, where he detected autophagy and identified genes important for the process. Ohsumi was able to map the underlying mechanisms and to show that the same type of process also occurs in human cells. Ohsumi’s discoveries laid the foundation for a better understanding of, among other things, the ability of cells to manage malnutrition and infections. Mutations in genes important for autophagy can result in hereditary diseases. Disturbances in the autophagy process can contribute to cancer and neurological diseases, among other things.

Yoshinori Ohsumi donated a figurine of himself by the microscope to the Nobel Museum.

THE NOBEL PRIZE IN LITERATURE 2016

WAS AWARDED TO

Bob Dylan

“for having created new poetic expressions within the great American song tradition”

**BOB DYLAN’S SONGS ARE ROOTED** in the rich tradition of American folk music and are influenced by the poets of modernism and the beatnik movement. Early on, Dylan’s lyrics incorporated social struggles and political protest. Love and religion are other important themes in his songs. His writing is often characterized by refined rhymes and it paints surprising, sometimes surreal imagery. Since his debut in 1962, he has repeatedly reinvented his songs and music. His transition from acoustic folk music to electric rock-influenced music in the mid-1960s stirred up angry emotions, as did his religious conversion around 1980. Some of his most significant albums are *Highway 61 Revisited* (1965), *Blonde on Blonde* (1966), and *Blood on the Tracks* (1975). Dylan’s musical production is extensive, and he has also written prose, including his memoirs *Chronicles: Volume One* (2004). He has also appeared in several movies and has worked as a visual artist.

Bob Dylan

Patti Smith performed A Hard Rain’s A-Gonna Fall by Bob Dylan at the Nobel Prize Award Ceremony.

Patti Smith

Santos, Photo: Mads Nissen/Politiken for Nobel Peace Center.

All other photos: Alexander Mahmoud.
THE NOBEL PEACE PRIZE 2016
WAS AWARDED TO
Juan Manuel Santos

“for his resolute efforts to bring the country’s more than 50-year-long civil war to an end”

SINCE 1960, Colombia has been plagued by civil war. The war has claimed at least 220,000 lives and caused six million inhabitants to flee. To achieve peace in Colombia, in 2012 the country’s President Juan Manuel Santos took the initiative for negotiations between the government and the FARC guerillas. In June 2016, an agreement was reached on a ceasefire and in August negotiations led to a draft peace agreement. In a referendum in early October 2016, a narrow majority of the Colombian people voted to reject the agreement. The Norwegian Nobel Committee emphasizes that the results of the referendum addressed a specific agreement proposal and should not be interpreted as a rejection of peace. By awarding Santos the Nobel Peace Prize, the Committee has wanted to encourage continued dialogue. A challenging task will be to achieve reconciliation between the various parties of the conflict, while ensuring justice for the victims of the war. Through the prize, the Committee wants to support everyone who struggles for peace, reconciliation, and justice in Colombia.

THE SVERIGES RIKSBANK PRIZE IN ECONOMIC SCIENCES 2016
WAS AWARDED TO
Oliver Hart and Bengt Holmström

“for their contributions to contract theory”

CONTRACTS PLAY A FUNDAMENTAL ROLE in society and the economy. They can protect against uncertainty and contribute to cooperation. Oliver Hart and Bengt Holmström have developed theoretical tools for analyzing various questions related to contracts. At the end of the 1970s, Bengt Holmström analyzed how a “principal”, for example, the owner of a company, should formulate an optimal contract for an “agent”, for example, the company’s CEO, whose actions the principal cannot fully monitor. Holmström’s information principle specifies the principal should link the agent’s compensation to relevant information. In the mid-1980s, Oliver Hart contributed to the theory of incomplete contracts. Since it is not possible to specify every eventuality in a contract, the right to make decisions under different circumstances should be assigned in an optimal manner. These Laureates’ analyses have been significant for, among other things, governance of companies and the design of laws and institutions.
Success for the Nobel Prize in Social Media

2016 was a record year digitally for the Nobel Prize. Efforts to continually find new ways to convey powerful stories linked to the Nobel Prize produced results. On Facebook, the number of followers increased from 600,000 at the start of the year to 3.5 million by the end of the year.
THE NOBEL PRIZE’S digital channels inspire and inform a steadily growing group of people every day. In summary, the year 2016 can be described as the most successful year digitally, by far, for the Nobel Prize. Facebook, where the number of followers increased by close to three million, accounted for the largest increase.

“We have worked very deliberately in our use of social media. We want to be constantly up-to-date on the different platforms”, said Magnus Gylje, editor-in-chief of Nobelprize.org.

During the year, Nobel Media focused on professionally produced videos created specifically for Facebook and formatted for easily viewing on mobile phones. The primary aim has not been to bring traffic to the main website, Nobelprize.org, but rather to create editorial content that is appropriate for the specific platform.

IN MARCH A VIDEO with profiles of all female Nobel Laureates was published. The film became the Nobel Prize’s biggest success in social media ever, reaching 30 million people in its stream within two days.

“It became clear that if we make things that are really good, we will reach a much bigger audience than our followers”, Gylje says. “People reacted, shared and commented. Our users have incredible power.”

The Facebook audience is relatively new; the biggest age group is between 18 and 30. These are people who love to engage in discussions and are interested in science, culture and social issues. Many followers are in countries like India, Brazil, the United States and Egypt. Particularly appreciated are posts on what earned the Laureates their prizes and what impact they had. Magnus Gylje explains:

“When we highlight the powerful stories of people who changed the world for the better, it tends to get people involved.”

Laureates and icons, such as Marie Curie and Martin Luther King Jr., always generate great interest in the Nobel Prize’s digital channels. In 2016 an audio recording of King’s Nobel Lecture was released for the first time on Facebook, a post that received an amazing international response.

A CONTRIBUTING REASON for the dramatic increase in the number of Facebook followers was the fact that Facebook chose to highlight the week in October when the new Nobel Laureates were announced. Over 24 hours, the number of followers on the Nobel Prize’s Facebook page rose from 1.2 to 3.5 million.

“I regard the fact that Facebook chose to highlight our page that way as an incredible compliment to my colleagues. It shows the power and interest in the Nobel Prize worldwide, and at the same time it confirms that we are already working in a good way”, says Gylje.

In 2017 the editorial team will continue focusing on video. It already has been working strategically in 2016 with live broadcasts from the opening of exhibitions, international meetings and the announcements – work that will continue in 2017.

“I am looking forward in a few years to connecting something that is happening physically on site in the new Nobel Center with a global digital audience”, says Gylje.

The Nobel Prize in social media:
facebook.com/NobelPrize
twitter.com/NobelPrize

“IT BECAME CLEAR THAT IF WE MAKE THINGS THAT ARE REALLY GOOD, WE WILL REACH A much bigger audience than our followers.”

THE DIGITAL YEAR IN FIGURES:

THE NUMBER OF FACEBOOK FOLLOWERS INCREASED FROM ABOUT

600,000 AT THE BEGINNING OF 2016 TO OVER

3.5 MILLION BY YEAR-END

FACEBOOK IS THE BIGGEST DIGITAL CHANNEL, ACCOUNTING FOR

84% OF THE AUDIENCE REACHED

BY THE END OF 2016, THE NUMBER OF DAILY USERS REACHED ON FACEBOOK

QUINTUPLED RISING TO ABOUT

1 MILLION COMPARED WITH ABOUT 200,000 AT THE START OF THE YEAR

THE NUMBER OF VISITORS AT NOBELPRIZE.ORG INCREASED BY

15% BETWEEN 2015 AND 2016
The Future of Food

*Your Plate – Our Planet: The Future of Food* was the title of the 2016 Nobel Week Dialogue. The full-day meeting was attended by several inspirational speakers and experts who gave talks and discussed current issues about the future of food.

**HOW SHOULD WE EAT** to live longer and will there be enough food for everyone? Research shows that sustainably produced food for a growing population is possible. It’s a question of reconfiguring today’s food system so that it produces healthy food, for more people, with minimal impact on the environment.

**WHILE ONE BILLION PEOPLE** in the world suffer from malnutrition, American households, retailers and producers discard almost 40 million tonnes of food each year. Speaker Tristram Stuart discussed one of the reasons these enormous amounts of food are thrown away: minor blemishes on products such as fruits and vegetables that have no effect on the products’ taste or shelf life. Apart from avoiding overproduction of food and changing public opinion on food waste, he maintains that there are many ways to make use of the food that is going to be discarded anyway. Why not make beer out of rejected crusts of bread?

**CALEB HARPER** talked about *The internet of food* – how food of the future can be grown in boxes controlled by computers, a form of cultivation that is independent of the local climate. In addition, the plants grow faster, they need less water and they are much closer to the dinner table. The boxes also are a valued tool in education to increase knowledge about the food we eat and to illustrate today’s environmental problems. The project is a clear example of how it’s possible to think in new ways about the future of food production.

At the end of the day, the participants were asked to take the décor home, consisting mainly of herbs, in order to minimize food waste.
NOBEL WEEK DIALOGUE: 5
NOBEL WEEK DIALOGUE HAS BEEN HELD FIVE TIMES AND TAKES PLACE ALTERNATELY IN GOTHENBURG AND STOCKHOLM

1,379
1,379 PEOPLE PARTICIPATED IN YOUR PLATE - OUR PLANET: THE FUTURE OF FOOD

45
45 DIFFERENT NATIONALITIES WERE REPRESENTED

34
34 PER CENT OF THE PARTICIPANTS WERE STUDENTS

1,000,000
MORE THAN ONE MILLION PEOPLE WORLDWIDE TOOK PART IN THE DAY VIA DIGITAL CHANNELS

38
38 MEDIA REPRESENTATIVES ATTENDED THE EVENT WHICH GENERATED A BROAD MEDIA COVERAGE IN PRINT MEDIA AS WELL AS REPORTS ON RADIO AND TV

24
24 SPEAKERS AND PANELLISTS PARTICIPATED. SIX WERE NOBEL LAUREATES: ELIZABETH BLACKBURN, STEVEN CHU, ANGUS DEATON, CHRISTIANE NÜSSELIN-VOLHARD, SIR RICHARD J. ROBERTS AND MUHAMMAD YUNUS.

98
98 PER CENT OF THE PARTICIPANTS WOULD VISIT NOBEL WEEK DIALOGUE AGAIN, ACCORDING TO A FOLLOW-UP SURVEY

0
0 KRONOR WAS THE FEE FOR PARTICIPATION

NOBEL LAUREATE ELIZABETH BLACKBURN conducts research on aging and on telomeres – the structures at the ends of chromosomes that are often compared to the hard tip of a shoelace. The shorter the telomeres, the more we age. Blackburn has mapped how we can lead a healthy life, and this research shows that food is of the greatest importance in this respect. Not surprisingly, foods such as sugar and processed meat have proven to have a bad impact on us, while a varied diet with lots of nutrients, such as a traditional Mediterranean diet, is good for our telomeres. In other words, eating healthily can affect how long we live.

TO REACH A NEW AUDIENCE, a pop-up discussion was held for the first time in central Stockholm during Nobel Week. The theme was Sustainable food for all – is it possible? The meeting took place at the Haymarket Hotel in central Stockholm. Nobel Laureates Elizabeth Blackburn and Muhammad Yunus as well as Tara Garnett and Tristram Stuart took part in the panel.

“The plants grow faster, they need less water and they are much closer to the dinner table.”

CALEB HARPER

Author and artist Patti Smith took part in a conversation about the importance of role models. Several Nobel Laureates are among her biggest sources of inspiration.
They are passionate about getting more people to understand the point of research. And one way of doing that is to make science more accessible, according to robot scientist Danica Kragic and Anna Sjöström Douagi, programme director of the Nobel Center.

“IT is important for everyone to understand the social challenges we face. With digitisation and robotics in place, many of the jobs that exist today will be gone in 20 years. We all need to contribute with ideas on how to face new times. I believe that everyone needs to be a bit of a scientist to keep up with the future,” Danica says.

ANNA SJÖSTRÖM DOUAGI agrees.

“There has been a gap between researchers and everyone else for a long time. People have just thought, ‘That’s not for us.’ It is important to eliminate the knowledge gap and to demonstrate that research really concerns everyone,” she says.

What’s needed to succeed is a place where the public and scientists can meet and inspire each other. A forum where scientific discussions can happen on all levels.

“We need an independent platform where we can reflect on how to contribute to the greatest benefit to mankind, together. A place where neither politics nor other interests are in control,” Anna says.

The Nobel Center will be just like that. A building where children, students and a curious public can meet scientists, writers and peacemakers.

TO INSPIRE YOUNG PEOPLE to pursue a career in research is high on the agenda for Anna and Danica, and Anna wants to turn scientists into role models.

“It would be a dream to welcome a school class, for example, to the Nobel Center with Danica. I want everyone to understand the point of research. Understand that anyone can be a Danica, who challenges the stereotype of what a scientist looks and acts like,” she says.

They both want to change the image of scientists and the research community.

“Many believe that if you work in research, you sit on your own in a room and think until you come up with something. We want to convey the message that you work with others. That it is both sociable and fun,” Danica says.

“The research community is incredibly sociable. A career in research often means opportunities to travel all over the world. Gender or political affiliation don’t matter – a good idea is a good idea wherever you go. As a scientist, you leave tracks everywhere. Your ideas and thoughts continue to grow; it’s great. Research is in many ways a big peace project. You would never want to bomb your collaborators,” Anna says.

MOST OF US would probably agree that there is a need for a place where the public can meet representatives from the world of science. Why does it have to be in the heart of Stockholm?

“To build the Nobel Center in central Stockholm is one way of showing how important these issues are. One should not underestimate accessibility and proximity. You should be able to go there and come up with an idea in time for your morning coffee, and decision makers should be able to pop across during their lunch hour,” Anna says.

Follow the development of the Nobel Center:
www.nobelcenter.se
facebook.com/nobelhuset
Anna Sjöstrom Douagi and Danica Kragic are passionate about making research and science more accessible.

“We all need to contribute with ideas on how to face new times.”

Danica Kragic
MANY NOBEL LAUREATES single out the school visits as one of the highlights during the Nobel Week. The students often prepare themselves for these inspiring meetings throughout the autumn, and these are an opportunity for the Laureates to meet students and teachers during their visit to Sweden. In connection with the 2016 Nobel Week, more than 15 school visits took place.

Students often take the opportunity to ask for advice on education and research. Nobel Laureate in Chemistry Jean-Pierre Sauvage, who visited the Rinkeby Library, advises young students not to be afraid:

“Don’t second-guess yourselves so much; just give it a try! And take advantage of every chance you get.”

MANY LAUREATES underline the importance of school, dedicated teachers and hard work, but that there is not always an easy way to follow. Several have run into difficulties over the years, experiences that they willingly share during these meetings.

Nobel Laureate in Physics Michael Kosterlitz, whose visits included the Midsommarkransen Upper Secondary School, became interested in physics and mathematics at an early age. For a long time however, he had difficulty in school, and it was only as an adult that he was diagnosed with attention deficit hyperactivity disorder (ADHD). Despite this, he pursued a very successful career, thanks to inspirational teachers, role models and various ways to overcome his challenges.

ÄVA UPPER SECONDARY SCHOOL in Täby was visited by Nobel Laureate in Physics Duncan Haldane, who recounted that he was not particularly good at school and not interested in physics at first:

“I didn’t like physics at all. But
“Don’t second-guess yourselves so much; just give it a try! And take advantage of every chance you get.”

NOBEL LAUREATE IN CHEMISTRY 2016
JEAN-PIERRE SAUVAGE

during the last year I had a very passionate teacher, and for the first time I liked physics.”

BERNARD FERINGA, who visited Grimsta School, shared his view of what it takes to inspire young people. He believes that universities should be a playground for young people and their creativity, intelligence and talent.

Feringa, who does some teaching, aspires to encourage and inspire his students and also to convey the message that it doesn’t hurt to fail. As a young man, he was told that failures can be learning experiences, and perhaps a way to even discover something new.

SELECTED SCHOOLS AND UNIVERSITIES VISITED DURING THE 2016 NOBEL WEEK:

Midsommarkransen Upper Secondary School
Bromma Upper Secondary School
Campus Manilla Upper Secondary School
Grimsta School

Rinkeby Library/Rinkeby School
British International School
Áva Upper Secondary School
Rålamshov School
Ecole Française
Lycée Français de Stockholm
The Japanese School

Uppsala University
Örebro University
Chalmers University of Technology
Lund University
Stockholm University
Hope over Fear – A Portrait of a People and a President

“Who is this guy? He looks very serious!” Nobel Peace Prize Laureate Juan Manuel Santos is looking at the big portrait of himself, hanging on the wall in the Nobel Peace Center in Oslo. He is here to open the exhibition about himself, the day after he received the Nobel Peace Prize in Oslo City Hall.

“He is a serious guy who did a very serious job”, answers Mads Nissen, the photographer behind the Nobel Peace Prize exhibition Hope over Fear.

Every year since the opening in 2005, the Nobel Peace Center has staged an exhibition dedicated to the current Nobel Peace Prize. The exhibition is created in eight hectic weeks, from the moment the prize is announced in October until the exhibition opens on the 11th of December.

Only days after the announcement of Juan Manuel Santos as the Laureate of 2016, the Danish photographer Mads Nissen was on his way to Colombia. Together with journalist Dorrit Saietz, he spent almost three weeks in this rich and beautiful country, which, in Saietz’ words, “has driven itself to the very brink and which is weary of war and violence and which does not know what it means to live in peace.”

The Nobel Peace Center team met deminers who are working side by side with FARC soldiers to clear areas for landmines. They met coca leave pickers, who earn twice as much picking coca as picking coffee. And they have been to the FARC camp El Diamante, where approximately 400 of the remaining 7,000-8,000 FARC members are living. They are preparing for the transition to civilian life, waiting to be transferred to the specially set up camps where they will hand over their weapons.

The team also spent time with President Juan Manuel Santos during the hectic weeks before the new peace treaty was signed in November 2016. In a video interview at the exhibition, Santos explains how the prize came at a critical time for Colombia:

“The Nobel Prize came like a God-given present at a very opportune time. Because it was given in a moment when people had lost faith, people thought that the peace process was over, and I was just starting to sort of rally the forces around the new agreement. And the Nobel Prize gave me a tremendous push; it came exactly at the right moment.”

Hope over Fear is showing at the Nobel Peace Center until 26 Nov 2017.

Photo: Mads Nissen / Politiken for the Nobel Peace Center.
“Making war is easy, but making peace is much more difficult. I would not have forgiven myself if, at the end of my life, I thought that I had the opportunity to bring peace to my people, and I didn’t take it.”

JUAN MANUEL SANTOS
This portrait of Alfred Nobel in his laboratory was painted by Emil Österman nineteen years after Alfred Nobel's death.
Alfred Nobel
Inventor, Entrepreneur and Businessman

Alfred Nobel was an inventor, entrepreneur and a very successful businessman who continually travelled between his factories. Nobel built up an enormous fortune that he chose in his will to dedicate to a prize that would reward outstanding efforts within the different fields that he was most involved in during his lifetime.

ALFRED NOBEL WAS BORN in Stockholm in 1833. His father, Immanuel, was an inventor and engineer who had varying success. His mother, Andrètte, was described as energetic and intelligent, and when Immanuel went to Russia after a bankruptcy, she was forced to support the family. When Immanuel established a company in the war industry in 1842, he could finally reunite with his family.

THE NOBEL BROTHERS were given a first class education by private tutors, and at the age of 17 Alfred spoke five languages: Swedish, Russian, English, French and German. At the time, he was interested in poetry and even wrote his own works. But his father disliked Alfred’s interest in literature and sent him abroad for studies that focused more on the natural sciences. He visited a number of countries and finally ended up in Paris, where he studied chemistry under Professor T. J. Pelouze. It was there that Alfred first came into contact with nitroglycerine, which was invented by the Italian Ascanio Sobrero. Nitroglycerine was a highly explosive liquid considered too dangerous to be useful.

Alfred Nobel returned to Sweden and soon began experimenting with nitroglycerine, both in its production and in making the substance reliable enough to use in industry. The work was dangerous and an accident killed several people, including his younger brother Emil.

ALFRED NOBEL WAS FINALLY able to solve the problem of the substance’s volatility by mixing nitroglycerine with a type of sand, kiselguhr. The result was a mouldable mass that was easy to package and that could be shipped and handled safely. It was patented in 1867 under the name dynamite.

With the patenting of different forms of dynamite together with detonators, which he had invented previously, Alfred Nobel achieved his major technical and industrial breakthroughs.

ALFRED NOBEL LED the rapid exploitation of his inventions and built factories and laboratories around the world — Vinterviken in Sweden, Krümmel in Germany and Ardeer in Scotland were some of the first. He eventually built just over 90 factories in 20 countries. At his death, he had 355 patents and left behind an enormous fortune. Nobel was a man of his time, embodying many of the Enlightenment’s central ideas, both in his practical work and in his philosophy. He combined his religious doubt with a belief in the natural sciences and was a true optimist about technology and an entrepreneur who actively took part in industrialisation.

ALFRED NOBEL DIED on 10 December 1896 in his home in San Remo, Italy, and his will attracted significant attention when it was published. He had allocated most of his fortune to rewarding outstanding efforts within physics, chemistry, physiology or medicine, literature and peace. The will was challenged by relatives, authorities in several countries and by Swedish King Oscar II. Thus began a long process on the road to realising Alfred Nobel’s vision. After a few years of complicated legal processes led by the executors of the will, Ragnar Sohlman and Rudolf Liljequist, the Nobel Foundation was established in 1900 and the first Nobel Prizes were awarded the following year.

“Second to agriculture, humbug is the biggest industry of our age.”

ALFRED NOBEL

Alfred Nobel, seen at the gate, on his way to his carriage.
“Our chemistry has been conducted without prejudice and has recognized no borders. Science is global and there’s no going back, even in the face of the uncertain future that pervades some of the Western world’s major democracies today.”

FRASER STODDART, NOBEL LAUREATE IN CHEMISTRY, IN HIS BANQUET SPEECH

PHOTO: ALEXANDER MAHMOUD
“This year’s Laureates /.../ have given us a rich mathematical language with deep and beautiful abstract concepts. But in the natural sciences, beauty is not enough – mathematics is full of beautiful results. Truth is also necessary. This requires experiments and measurements. The theory of topological matter has passed this test with distinction.”

PROFESSOR THORS HANS HANSSON’S PRESENTATION SPEECH AT THE NOBEL PRIZE AWARD CEREMONY
PHOTO OF MICHAEL KOSTERLITZ, NOBEL LAUREATE IN PHYSICS
For the Greatest Benefit to Mankind since 1901

With his prize Alfred Nobel wanted to award those who had contributed to the greatest benefit to mankind. In December 2016 the Nobel Prize and the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel had been awarded to 911 Laureates. Both individuals and organisations that contributed to a better world through their scientific discoveries, their literary creations and their work for peace and the resolution of conflicts.

885 Laureates and 26 organisations have been awarded the Nobel Prize and the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel between 1901 and 2016. A small number of individuals and organisations have been honoured more than once, which means that 881 unique individuals and 23 unique organisations have received the prize.

A Nobel Prize can be divided between three individuals at the most. Of the different prize categories the Medicine Prize has the most Laureates: 211. The Prize in Economic Sciences, which was awarded for the first time in 1969, has the least number of Laureates: 78. The 23 organisations that have been awarded a Nobel Prize are all Peace Prize Laureates.

TURNING A MISTAKE INTO A SCIENTIFIC BREAKTHROUGH

Two major scientific breakthroughs that were awarded the Nobel Prize occurred due to forgotten culture plates: both penicillin (Fleming, Medicine 1945) and the discovery that the bacteria Helicobacter pylori causes inflammation in the stomach or gastric ulcers, not stress or poor lifestyle (Marshall and Warren, Medicine 2005).

Marshall drank a culture of Helicobacter to finally prove that the bacteria could infect a healthy person and cause gastritis. Illustration from Marshall’s Nobel Lecture
Linus Pauling is the only person to have been awarded two unshared Nobel Prizes. He was awarded the Nobel Prize in Chemistry in 1954 for his research on the chemical bond. A few years later, in 1962, Pauling was awarded the Nobel Peace Prize for his dedication regarding nuclear disarmament. This prize was not actually handed over to Pauling until 1963.

Elinor Ostrom was awarded the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel in 2009 “for her analysis of economic governance, especially the commons”. She demonstrated how local property could be successfully managed by local commons without any regulation by central authorities or privatisation. Elinor Ostrom is the only woman to have been awarded the Prize in Economic Sciences.

Martin Luther King Jr. was awarded the Nobel Peace Prize 1964 for his activism in the Civil Rights Movement. He is the most visited Laureate on Nobelpize.org. King was murdered on 4 April, 1968 in Memphis, Tennessee. Martin Luther King Jr. Day, celebrated to his memory each year in January, was made an American federal holiday in 1983.

“In this post-fact era, I believe that scientists’ engagement with society will be more important than ever before. We need to do our part in building public trust in science, by ensuring that our papers and talks are as solid and true to data as possible, but also by making sure the knowledge we produce is made accessible for people.”

MAY-BRITT MOSER, NOBEL LAUREATE IN PHYSIOLOGY OR MEDICINE 2014, QUOTED IN THE GUARDIAN ON 2 JANUARY 2017
THE ORGANISATION SURROUNDING THE NOBEL PRIZE

THE NOBEL PRIZE is surrounded by a network of organisations and institutions with different tasks related to the prize. Over the past decade, the organisational structure has grown, particularly in areas tasked with inspiring and spreading knowledge about the Nobel Prize.

WHAT DOES THE NOBEL FOUNDATION DO?
The Nobel Foundation, a private foundation established in 1900, has ultimate responsibility for fulfilling the intentions laid out in Alfred Nobel’s will. The main mission of the Foundation is to manage the assets made available through the will and the intellectual property related to the Nobel Prize that has developed over the years. The Foundation finances both the independent work of selecting the Nobel Laureates by the Nobel Prize-awarding institutions and the prize money. It also has responsibility for ensuring that the processes and regulations of the prize-awarding institutions are correct and maintain high quality.

WHO SELECTS THE NOBEL LAUREATES?
In accordance with the instructions Alfred Nobel left through his will, the process of independently and expertly selecting Nobel Laureates is handled by the Nobel Prize-awarding institutions named in his will:

- ROYAL SWEDISH ACADEMY OF SCIENCES – Nobel Prize in Physics and Chemistry and the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel
- NOBEL ASSEMBLY AT KAROLINSKA INSTITUTET – Nobel Prize in Physiology or Medicine
- SWEDISH ACADEMY – Nobel Prize in Literature
- NORWEGIAN NOBEL COMMITTEE (a committee of five persons appointed by the Norwegian Storting) – Nobel Peace Prize

Read more about the prize-awarding institutions and how they select Nobel Laureates on pages 26–27.

THE NOBEL PRIZE AS A SOURCE OF INSPIRATION
The Nobel sphere also includes a number of externally financed entities with the primary task of disseminating information about the Nobel Prize and engaging and inspiring people around the world through the stories of the Nobel Laureates. During 2015, the non-profit Nobel Foundation Rights Association was replaced by the Alfred Nobel Memorial Foundation. The Memorial Foundation serves as an umbrella organisation for the following entities:

- NOBEL GROUP INTERESTS AB, Stockholm
- NOBEL MEDIA AB, Stockholm
- NOBEL MUSEUM AB, Stockholm
- NOBELHUSET AB, Stockholm
- NOBEL PEACE PRIZE – RESEARCH & INFORMATION AS, Oslo
- NOBEL PEACE CENTER FOUNDATION, Oslo
- NOBEL CENTER FOUNDATION, Stockholm

The above organisations are all externally funded, for example through entrance fees, contributions from governmental or local authorities, education organisations, philanthropic organisations, or through partnerships with companies. The companies within the Nobel sphere have no influence over or access to the nomination or selection procedures of the Nobel Prizes. Only after the public announcement of the Nobel Laureates can these organisations begin spreading information about each year’s Laureates.

“The ongoing development of our international information campaign is important for safeguarding the Nobel Prize’s position and spreading its message to a global audience. There are also good reasons for promoting efforts that are in harmony with the spirit of the Nobel Prize and that encourage creativity and innovation, thereby contributing to solutions to major current and future challenges. The support these companies receive through their respective sponsors is essential for conducting and expanding these efforts,” says Lars Heikensten, Executive Director of the Nobel Foundation.

ORGANISATIONAL STRUCTURE, MARCH 2017

Together with the assemblies/the prize-awarding institutions, the Nobel Foundation appoints the boards of the Alfred Nobel Memorial Foundation and the Nobel Peace Center.
Medicine Laureate Yoshinori Ohsumi prepares for the official portrait photo.

PHOTO: ALEXANDER MAHMOUD
THE INSTITUTIONS THAT SELECT NOBEL LAUREATES

IN HIS WILL, Alfred Nobel stipulated which institutions should select Nobel Laureates in each prize category. Presumably, he chose the academic institutions that he considered to be best suited to the task. Nobel was less specific regarding the organisation that was to manage his assets. What would later become the Nobel Foundation was only mentioned in his will as a fund.

The Nobel Prize’s internationally unique position is largely due to the century-long independence of the prize-awarding institutions in selecting Nobel Laureates. The fact that these organisations have engaged exceptionally knowledgeable individuals within their own organisations as well as extensive international expertise has played a vital role in achieving this standing.

THE ROYAL SWEDISH ACADEMY OF SCIENCES selects the Nobel Laureates in Physics and Chemistry. It also selects the recipients of the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel, established in 1968 on the occasion of the Riksbank’s (Sweden’s central bank) 300th anniversary. The Academy has about 450 Swedish and about 175 foreign members.

The Nobel Assembly at Karolinska Institutet selects the Nobel Laureates in Physiology or Medicine. The Assembly has 50 members.

The Swedish Academy selects the Nobel Laureates in Literature. The Academy has 18 members.

All of these institutions appoint special Nobel Committees of three to five members, a secretary and, in some cases, also deputies. Members are elected for a term of three years and may serve for a maximum of three consecutive terms. The Nobel Committees evaluate nominations for the respective Nobel Prizes and extensively examine a selection of the nominees. They subsequently present their proposals for Nobel Laureates to the respective prize-awarding institution. The actual decision as to who will be awarded Nobel Prizes is made not by the respective Nobel Committees, but by all members of the prize-awarding institution.

For the Peace Prize, Alfred Nobel referred to the Storting (national parliament) in Norway in his will. The Storting appoints the five members of the Norwegian Nobel Committee. The Norwegian Nobel Committee differs from the other prize-awarding institutions in the sense that it is responsible both for evaluating the nominees and selecting the recipient.

IN SEPTEMBER OF EACH YEAR the respective Nobel Committees send out individual invitations to thousands of members of academies, university professors and other scientists in numerous countries, previous Laureates, members of parliamentary assemblies and others. The invitation recipients are chosen so to ensure that as many countries and universities as possible are represented over time. A much broader group can make nominations for the Nobel Peace Prize without receiving an invitation from the Norwegian Nobel Committee compared to the other prizes. This nomination procedure for the Nobel Prize differs from many other prizes where it is the responsible committee which appoints both the nominees and the recipients.

Those who have been invited are able to nominate candidates for the coming year. Nominations, which are confidential, must be received by the Committees no later than 31 January of the year in which the prize will be awarded.

The procedures may vary somewhat between the Nobel Committees, but the selection process is largely the same across all prize categories. The Committees first confirm that the nominations were submitted by individuals who have the right to nominate. Since a nomination is only valid for the current year, it is common for some candidates to be nominated several times. Some candidates may also be nominated by more than one nominator in the same year. Nominations are recorded and compiled in a list. This list is processed in a series of phases during the spring. Initially, it consists of a large selection of names, which is then narrowed down to a smaller number of candidates. These candidates are then evaluated in depth with the assistance of domestic and foreign experts. During the summer the Nobel Committee members produce a comprehensive report detailing the candidate or candidates proposed as the recipient(s) of the year’s Nobel Prize. The proposal is presented to the members of the prize-awarding institution in September. The final selection of Nobel Laureates takes place by a vote. The decisions are announced by the respective prize-awarding institutions immediately after the vote, usually during the first half of October. According to the Nobel Foundation’s statutes, prizes can be equally shared between two works, though by not more than three individuals. All documents related to the nomination process and evaluations remain confidential for 50 years.

More information about the prize-awarding institutions is available on their respective websites:

www.kva.se
www.nobelprizemedicine.org
www.svenskaakademien.se
www.nobelpeaceprize.org

SELECTING NOBEL LAUREATES

More information about the prize-awarding institutions is available on their respective websites:

www.kva.se
www.nobelprizemedicine.org
www.svenskaakademien.se
www.nobelpeaceprize.org
THE NOBEL FOUNDATION, a private institution established in 1900, has ultimate responsibility for fulfilling the intentions in Alfred Nobel’s will. The main mission of the Nobel Foundation is to manage Alfred Nobel’s fortune in a manner that ensures a secure financial standing for the Nobel Prize over the long term and that the prize-awarding institutions are guaranteed independence in their work of selecting recipients. The Foundation is also tasked with strengthening the Nobel Prize’s position by administering and developing the brands and intangible assets that have been built up during the Nobel Prize’s history, which spans more than 100 years. The Nobel Foundation also strives to safeguard the prize-awarding institutions’ common interests and to represent the Nobel sphere. In the past two decades a number of public operations have been developed with the aim of inspiring and disseminating knowledge about the Nobel Prize.

The Nobel Foundation has overall responsibility for the Nobel Week that takes place in Stockholm in December. This week has a busy schedule for the Nobel Laureates, culminating in the Nobel Prize Award Ceremony and the Nobel Banquet. Both of these events are planned and run by the Foundation. The 2016 Nobel Week concluded with a reception for the Nobel Laureates at the Nobel Foundation.

THE MARKET VALUE of the Nobel Foundation’s invested capital amounted to SEK 4.241 billion at the end of 2016. Investment capital is distributed as 50 per cent equities, 17 per cent fixed-income assets and 33 per cent alternative assets. The return on investment capital for the year was 6.9 per cent. The total cost for all Nobel Prizes and operating expenses in 2016 was SEK 97.2 million. This was divided among three main categories: the prizes and compensation paid to the prize-awarding institutions (SEK 67.6 million); the Nobel Week in Stockholm and Oslo (SEK 14.6 million); and administration and other expenses (SEK 14.9 million). Additional information about the Nobel Foundation’s financial management is available in the Foundation’s 2016 Annual Report, which is available at Nobelprize.org.

The Nobel Foundation also administers Nobel Symposia held in the respective prize categories. In 2016 two Nobel Symposia were held: NS 160 Chemistry and Physics of Heavy and Superheavy Elements, organised by Professor Claes Fahlander and Professor Dirk Rudolph, and NS 161 The Causes of Peace, organised by Professor Olav Njølstad.

During 2016 it was decided that the Nobel Symposia will no longer be administered by the Nobel Foundation. Starting in 2018, the responsibility for administering the symposia will be licensed to the Royal Swedish Academy of Sciences.

THE NOBEL FOUNDATION’S BOARD, which is based in Stockholm, consists of seven members and two deputy members appointed by the Foundation’s trustees. Board members and deputies are appointed for a term of two years each. From among its own members, the Board chooses a Chairperson, a Vice-Chairperson and an Executive Director.

The market value of the Nobel Foundation’s invested capital fell during the IT crash (2000–2003) and the recent financial crisis (2007–2008), which was mainly due to a high allocation to equities. In recent years, several changes have been made in the investment strategy, among other things a larger share of the capital has been invested in alternative assets. From the year 2011 the capital has grown from 3 billion to 4.2 billion SEK at the end of the year 2016.
All nine Laureates participating in the Nobel Week in Stockholm gathered at the Nobel Foundation concluding reception on 12 December.

“The grim truth is that we can no longer take it for granted that people believe in science, facts and knowledge. In times like these, the Nobel Prize is important.”

CARL-HENRIK HELDIN

The Nobel Foundation Chairman, Professor Carl-Henrik Heldin, gave an opening address at the Nobel Prize Award Ceremony which caught attention in international media.

BOARD OF DIRECTORS 2016

Carl-Henrik Heldin, Professor, Chairman
Göran K. Hansson, Professor, Vice Chairman, Secretary General of the Royal Swedish Academy of Sciences
Lars Heikensten, Dr, Executive Director of the Nobel Foundation
Sara Danius, Professor, Permanent Secretary of the Swedish Academy
Kaci Kullmann Five, Adviser, Chair of the Norwegian Nobel Committee

Thomas Perlmann, Professor, Secretary General of the Nobel Assembly at the Karolinska Institutet
Tomas Nicolin, MSc
Lars Bergstrom, Professor, Member of the Royal Swedish Academy of Sciences, Deputy Member
Gunnar von Heijne, Professor, Secretary of the Nobel Committee for Chemistry, Deputy Member
NOBEL MEDIA SPREADS KNOWLEDGE
about Nobel Prize-awarded achievements and stimulates interests in science, literature and peace in line with Alfred Nobel’s vision. The company’s operations have two main pillars. The first is digital dissemination and content publishing on the official Nobelprize.org website as well as through social media and podcasting. The second is international, inspirational events such as Nobel Week Dialogue, Nobel Prize Dialogue, Nobel Prize Series and Nobel Prize Inspiration Initiative – all of them featuring Nobel Laureates. Nobel Media also produces the annual Nobel Prize Concert in Stockholm and manages a portfolio of publishing licenses, archive sales and live broadcasting rights to the Nobel Prize Award Ceremonies in Stockholm and Oslo.

2016 was a record year digitally for the Nobel Prize. Efforts to continually find new ways to convey powerful stories linked to the Nobel Prize produced results. On Facebook, the number of followers increased from 600,000 at the start of the year to 3.5 million by the end of the year. Read more about social media on page 8.

THE ANNUAL, PUBLIC EVENT Nobel Week Dialogue took place at the Stockholm City Conference Centre on 9 December under the title Your Plate - Our Planet: The Future of Food. It allowed more than 1,300 participants to experience a unique programme with thought-provoking panelists from science and society on the theme of food. During this day alone, more than a million people were reached when selected content from the Nobel Week Dialogue was published via Nobel Prize’s digital channels. A new item on the programme this year was the pop-up conversation at the Haymarket Hotel in central Stockholm on the day before the Nobel Week Dialogue, which made it possible to expand the conversation and involve a wider audience. Read more on pages 10-11.

Nobel Prize Inspiration Initiative creates closer contacts between the Nobel Laureates and the global research community. In 2016 events were held in France, South Korea, Japan and China. Nobel Laureates took part in lectures, roundtables and panel discussions at fifteen institutions in six cities. The Nobel Prize Inspiration Initiative focuses specifically on informal interactions between Nobel Laureates and young scientists. The insightful exchanges from these meetings are filmed and made available online to a wider audience.

On 20–21 March, Nobel Media organised Nobel Prize Series Dubai 2016. Three Nobel Laureates took part, sharing their knowledge and insights with students and other participants. The event, with an overall theme of Learning for Life, featured lectures, Q&A sessions and discussion panels, with particular emphasis on promoting informal interaction with students. The programme included the Nobel Museum’s Exploring Life exhibition, which opened on 21 February, 2016, at Dubai Children’s City.

THE SWEDISH public service television broadcaster (SVT) produced the annual live broadcasts from the Nobel Prize Award Ceremony and Banquet in Stockholm, while Norwegian Television (NRK) produced the annual Nobel Peace Prize Award Ceremony in Oslo. International distribution rights of live broadcasts are managed by Nobel Media and distributed via global news agencies – Reuters, APTN, AFP and the European Broadcasting Union (EBU). SVT also produced a live broadcast from the Nobel Prize Concert in Stockholm that was distributed to EBU members.

IN 2016 Nobel Media entered into a long-term partnership with three additional organisations: Ericsson, Scania and Volvo Cars. They join 3M, bringing the number of Nobel International Partners to four. Nobel Media has collaborated with various companies and organisations with events held in Sweden and around the world. These include Akademiska Hus, Akamai, AstraZeneca, Carl Bennet AB, the City of Gothenburg, DNB, ICA, JP Morgan, Microsoft, Region Västra Götaland and Stockholm Business Region.
**Number of employees:** 12 in Stockholm and 2 in London

**Turnover:** SEK 46,229 K

**CEO:** Mattias Fyrenius

**Established:** 2004

**Corporate ID No.:** 556667-5194

**Address:** Sturegatan 14, Stockholm, Sweden

**Contact:** press@nobelmedia.se, +46 (0)8-663 17 22

**Website:** www.nobelprize.org/nobel_organizations/nobelmedia

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- **Lars Heikensten**, Dr, Executive Director of the Nobel Foundation
- **Patrik Hadenius**, Editor-in-Chief and Managing Director of Forskning & Framsteg
- **Ove Joanson**, CEO of Media Conglomerate
- **Marie Nilsson**, CEO of Mediavision
- **Olav Njølstad**, Professor, Director of the Norwegian Nobel Institute
- **Daniel Birnbaum**, Director of the Museum of Modern Art, Stockholm
- **Juleen Zierath**, Professor, Chairman of the Nobel Committee for Physiology or Medicine
- **Sara Mazur**, Vice President and Head of Ericsson Research
- **Erika Lanner**, General Counsel, Nobel Foundation, Deputy Member

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**PROGRAMME 2017**

**9–13 JANUARY 2017**

Nobel Prize Series India 2017 in Ahmedabad, Gandhinagar, Delhi and Bangalore

**25–26 FEBRUARY 2017**

Nobel Prize Dialogue, Tokyo

**OCTOBER**

Live broadcasts of the announcement of the 2017 Nobel Prizes on Nobelprize.org

**30 OCTOBER**

Nobel Prize Dialogue in Seoul, South Korea

**DECEMBER**

Interviews with Nobel Laureates and live broadcasts from the Nobel Lectures on Nobelprize.org

**8 DECEMBER**

Nobel Prize Concert at the Concert Hall in Stockholm

**9 DECEMBER**

Nobel Week Dialogue in Gothenburg

**10 DECEMBER**

Live broadcasts of the Nobel Prize Award Ceremonies in Oslo and Stockholm

**11 DECEMBER**

Recording of the BBC-produced Nobel Minds Debate

As part of Nobel Prize Inspiration Initiative (NPII), Nobel Laureates will participate in international seminars held at various universities and at AstraZeneca’s research centres around the world. In 2017, seminars will be held in Scandinavia, Brazil, Germany and Spain/United Kingdom.

For more information: www.nobelprize.org, facebook.com/NobelPrize, twitter.com/NobelPrize

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**For more information:**

A couple of students take a selfie with Nobel Laureate Brian Kobilka under Nobel Prize Inspiration Initiative in South Korea.
THE NOBEL MUSEUM is one of the most frequented museums in the country and a given destination for many tourists. In addition, the museum is a resource for schools and teachers, a popular meeting place for locals and a place for talks, dialogue and discussion. In May, the Nobel Museum welcomed the two-millionth visitor since opening in 2001.

THE NOBEL MUSEUM CELEBRATED its 15th anniversary in 2016, commemorating the event with an anniversary programme in conjunction with Stockholm’s Culture Night. With its 750 square metres of exhibition space, the Nobel Museum is one of Stockholm’s smallest museums, but visitor numbers are on a par with some of the largest museums. By the end of 2016, the museum registered 231,876 visitors. This is a good starting point now that the focus is increasingly directed towards the development of the Nobel Center. In coming years, the museum will seek to expand its public presence by collaborating with other institutions, allowing it to expand its operations before the move to a larger building. An example of this is the Nobel Creations 2016 exhibition, which was held at Tom Tuits Experiment in Södertälje and was also on display at Stockholms Auktionsverk. This was the fifth year that the exhibition was carried out in collaboration with some of Stockholm’s artistic universities, and for the first time the exhibition took place outside the museum.

THIS YEAR’S BIG EXHIBITION event was Experiment – Ideas, Tools and Nobel Prizes, a show that delineates the importance of experimentation, provides a series of examples of experiments that led to the Nobel Prize and even invites visitors to do lab work of their own under expert supervision. The exhibition features, among other things, the experiments by which Pierre and Marie Curie were able to measure radioactivity. During the year another exhibition featured the Nobel Center, offering visitors an opportunity to contribute comments. During the summer an updated version of Sketches of Science was presented. The Nobel Museum developed the exhibition together with photographer Volker Steger and the Lindau Nobel Laureate Meetings.

For younger visitors and schoolchildren, the museum has continued to develop the Forskarhjälpen concept, which allows students to try conducting real research in cooperation with a number of Swedish universities and colleges. The project has now received additional funding, allowing it to be enhanced and developed over the next four years. For the second year, the museum arranged a research camp for 4th–6th grade students during the summer holidays, with field trips, experiments and excursions. This is part of efforts to develop concepts that can be expanded when the museum is better situated for operations on a larger scale.

INTERNATIONALLY, the work continued with Nobel Prize Series, which is carried out together with Nobel Media. The Nobel Prize: Ideas Changing the World exhibition visited Singapore and the exhibition Exploring Life: The Nobel Prize in Physiology or Medicine travelled to Dubai. The exhibition programme in Dubai gives the museum an excellent opportunity to develop exhibition concepts for the Nobel Center.

2016 WAS A SUCCESSFUL year for the Nobel Museum. New attendance records were reached and a series of exhibitions with new concepts were produced. The school activities are appreciated, attracting about 17,000 students to the museum each year and reaching additional large groups throughout the country. Over the coming years, the Nobel Museum will become the natural place for trying out new ideas and concepts for the Nobel Center, a project involving both personnel and visitors.
PROGRAMME & EXHIBITIONS 2017

31 JANUARY
Show: SCANDAL! An explosive drama about the female Nobel Laureates in Physics, Chemistry and Medicine

7 FEBRUARY
Literature Talk: Bob Dylan – Finally! Ola Holmgren speaks about Bob Dylan as a musician, poet and Nobel Laureate

28 FEBRUARY
Science Café: Ice Crystals – how they are formed and created

14 MARCH
Mini Science Fair: Ask, see, try – Meet ten scientists in different fields. Experience experiments and take an active part in the events

18 APRIL
Science in Focus: The Chemistry of metals

29 APRIL
Culture Night
Theme: The Human Body

SEPTEMBER
The exhibition Nobel Rebellion inaugurated

OCTOBER
Announcement of the 2017 Nobel Prizes

10 DECEMBER
Celebration of the Nobel Day at the Nobel Museum

This list represents a selection of events.
For a complete list, please visit www.nobelmuseum.se
NOBEL PEACE CENTER FOUNDATION

THE NOBEL PEACE CENTER is the museum of the Nobel Peace Prize and is located in the very heart of Oslo – right next door to the City Hall where the prize is awarded every year. Tourists, schoolchildren and the public come here to learn about Alfred Nobel and the Peace Prize and to gain inspiration from work and ideas of the Laureates.

Since opening in 2005, the Nobel Peace Center has grown to become one of the most visited museums in Oslo and Norway, with nearly a quarter of a million visitors annually. Nearly a third of them are children, schoolchildren and students.

On 1 January 2016, the Nobel Peace Center appointed Liv Tørres as the new director. During her first year in the position, the Peace Center has also strengthened its position as a social institution and an arena for topical debate. Every other Thursday during the spring and autumn seasons, the centre holds debates or discussions on issues related to war, peace and conflict resolution. Interest in these Thursday debates has steadily increased, and they now attract an average of 120 attendees. During 2016, the Nobel Peace Center organised breakfast seminars and meetings between school students and the Norwegian Crown Prince, discussed Forbidden Songs in collaboration with the Oslo World Music Festival, opened the museum for Oslo residents for Culture Night and gathered over a hundred children for the opening of the new children’s activity at the museum. More than 40 large events, with a total of over 20,000 visitors, have been held in 2016.

During 2016, the Nobel Peace Center has staged twelve different exhibitions at the museum and at other sites in Norway. The exhibitions Targets and The Dangerous Prize in the centre’s largest exhibition space, as well as the contemporary artwork Unknown Numbers outdoors on the Peace Wall, have enabled the Nobel Peace Center to spotlight relevant topics such as perceived enemies and the freedom of expression. Unknown Numbers and The Dangerous Prize opened on the same day in June 2016, with a major celebration of freedom of speech. The exhibition The Dangerous Prize focused on the German Peace Prize Laureate Carl von Ossietzky (1935), who is unknown for many, and with it also a controversial part of the history of the Nobel Peace Prize.

The many thousands of people who cross the City Hall square every day have been able to see large, powerful portraits of freedom fighters from around the world, from Ossietzky to Raif Badawi.

The 2016 Peace Prize exhibition opened on 11 December and was a continuation of the centre’s long-term focus on documentary photography. The exhibition was entitled Hope over Fear and was staged in collaboration with the celebrated Danish photographer Mads Nissen. It is a portrait of Peace Laureate Juan Manuel Santos and the Colombian people.

In 2016, a great emphasis was placed on staging exhibitions in other places in Norway, including the exhibition What the World Eats in Lillehammer and the travelling exhibition Peace at Work that was shown in Tønsberg and at the Paleet shopping centre in the heart of Oslo.

CHILDREN AND YOUNG PEOPLE are one of the largest audience groups at the Nobel Peace Center. The centre played host to 780 school groups for 17 different education programmes and guided tours in 2016. The centre also offers various activities for children who are visiting with their families, and in 2016 a new children’s trail about freedom of expression was opened called Fred and Toca Loca Speak Out. Together with the educational staff, giraffe Fred and the toucan Toca Loca, the children learn about their rights and opportunities to talk about the things that engage them. The children’s trail formed part of the centre’s holistic efforts to examine freedom of expression in 2016.

The main sponsors of the Nobel Peace Center are Hydro, Telenor and ABB.
PROGRAMMES AND EXHIBITIONS IN 2017

JANUARY TO NOVEMBER
Peace Prize Exhibition 2016: Hope over Fear

JANUARY TO APRIL
Unknown Numbers will be exhibited on the Peace Wall outside the museum

JANUARY TO FEBRUARY
The Dangerous Prize, an exhibition about Carl von Ossietzky

FROM 9 FEBRUARY
The Nobel Peace Center arranges debates and discussions about current topics every other Thursday at 6 pm. Admission free

MARCH TO SEPTEMBER
Omveier/Detours. An exhibition about refugees

23 APRIL
Tourist in your own city: Admission free

SEPTEMBER TO NOVEMBER
European Photo Exhibition Award - EPEA03: Shifting Boundaries

15 SEPTEMBER
Oslo Culture Night. Admission free from 6 pm and open until 11 pm

OCTOBER
The 2017 Nobel Peace Prize is announced

DECEMBER
The exhibition The Nobel Peace Prize 2017 opens

This is a selection from the programme.
For the full programme visit www.nobelpeacecenter.org

\*The rays of peace shines over Colombia. May it shine over the world\* was the message Juan Manuel Santos left in the exhibition Hope over Fear.

Since opening in 2005, the Peace Center has grown to become one of the most visited museums in Norway.

Nobel Peace Center

Number of employees: 30
Turnover: NOK 54,579 K
VD: Liv Tørres
Established: 2005
Corporate ID No.: 985226237
Address: Brynjulf Bulls Plass 1, Rådhusplassen, Oslo, Norge
Contact: post@nobelpeacecenter.org, +47 48 30 10 00
Website: www.nobelpeacecenter.org

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Siri Hatlen, Chair of Entra and the Technology Council
Olav Aaraas, Historian, Museum Director, the Norwegian Museum of Cultural History
Olov Amelin, PhD, Director, the Nobel Museum, Stockholm
NOBEL PEACE PRIZE – RESEARCH & INFORMATION AS

The Nobel Peace Prize – Research & Information AS is the research arm of the Norwegian Nobel Institute. It focuses on research and information about peace and conflicts and reflects the same spirit as is found in the work of the Norwegian Nobel Committee. The company primarily arranges the visiting fellows programme, lectures and seminars. The Nobel Institute’s visiting fellows programme began in the early 1990s. Since then, it has hosted over 200 fellows studying international history and politics. It is an extension of the Nobel Institute’s original ambition of being an intellectual force in direct contact with the latest developments within international politics.

In the spring of 2016, nine political scientists, historians and economists were invited to shorter and longer research stays in Oslo. This culminated in a range of popular seminars that were held at the Nobel Institute in the period from 21 April to 14 June under the title The Causes of Peace, which was also the theme of the Nobel Symposium (NS 161) that took place between 15 and 18 June at Os, near Bergen. The insights gained from the symposium will be made available to the public in a book with the same title that will be published in 2017. The seminar topics took their starting point from the three criteria for the Peace Prize as stated by Alfred Nobel in his will: fraternity between nations and the abolition or reduction of standing armies and the formation and spreading of peace congresses. These are reflected in three distinct traditions in modern peace research through a focus on societal frameworks for peace, disarmament and institutional frameworks that have made the world today more peaceful than it was, relatively speaking.

The lectures were open to the public and contributed to a stimulating debate in Norwegian and international media. All the seminars were streamed to a global audience via the Internet. In this way, the organisation was successful in its ambition to reach out to a wider audience, an ambition we aim to develop further in 2017. The organisation was funded by grants from the Fritt Ord Foundation and the Norwegian Ministry of Foreign Affairs.

In 2016, these activities reached a new high with the Nobel Peace Prize Forum, which was held on 11 December in the Oslo University Aula in Oslo. Two 20th century statesmen, Henry Kissinger and Zbigniew Brzezinski, discussed what the change of presidency in the United States would entail for peace and security in the world. The Nobel Peace Prize Forum will also be held during the Nobel Days in Oslo in 2017.

The Nobel Peace Prize Concert was organised for the 22nd time in 2016. The concert is funded through sponsors, ticket revenues and television distribution rights. Warner Bros Norway and the event company Gyro were responsible for production and distribution of the concert. The Nobel Peace Prize Concert on 11 December was a musical celebration of the year’s Peace Prize Laureate, Juan Manuel Santos. The concert, which was hosted by the US TV personality Conan O’Brien, was held at the Telenor Arena outside Oslo. Several international artists contributed to the celebration with music that ranged from pop and rock to Latin American rhythms. The concert was seen by a live audience of 9,000 and was broadcast on Norwegian and foreign television and streamed to a global audience via YouTube.
This year’s guest researcher programme takes place under the heading Disarmament and Armament Dynamics in the Present World with lectures from John Cerone (Distinguished Chair in Human Rights & Humanitarian Law, Raoul Wallenberg Institute), David Churchman (Professor, California State University), Jacek Kugler (Professor, Claremont Graduate College), Andrew Futter (Associate Professor, University of Leicester), Calin Trenkov Wermuth (Department of Peace Keeping Operations at the United Nations) and Denise Garcia (Associate Professor, Northeastern University) and others. For dates and topics, see: www.nobelpeaceprize.org/no/forskning

8–10 JUNE
High-Level Dialogue on Nuclear Security. The conference will be held at the Norwegian Nobel Institute. Organiser: Olav Njølstad

11 DECEMBER
Nobel Peace Prize Forum Oslo & Nobel Peace Prize Concert

For more info, visit: www.nobelpeaceprizeconcert.com

The Nobel Peace Prize was awarded at the University of Oslo Aula between 1947 and 1990. The artwork was created by the famous Norwegian artist Edvard Munch. This is also where the first ever Nobel Peace Prize Forum Oslo took place, under the theme The United States and world peace after the Presidential Election.

Henry Kissinger, Nobel Peace Prize Laureate 1973, was one of the speakers at Nobel Peace Prize Forum Oslo.

Nobel Peace Prize
Research & Information

Number of employees: 1
Turnover: NOK 3,150 K
Established: 2010
Corporate ID no: 996179397
Address: Henrik Ibsens gate 51, Oslo, Norway
Contact: +47 22 12 93 00, info@nppri.org
Website: www.nobelpeaceprize.org/research

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Olav Njølstad, Professor, Director of the Norwegian Nobel Institute
Kaci Kullmann Five, Chair of the Nobel Committee
Jon Ola Sand, Executive Supervisor, The European Broadcasting Union
Asle Toje, political scientist, Research Director
Annika Pontikis, Director of Communications, Nobel Foundation
NOBEL CENTER

THE NOBEL CENTER will be an intellectual living room where people will want to come to ask questions, learn new things, discuss, experience and meet. There will be a wide range of public activities here—school programmes, exhibitions, scientific seminars, public discourse and events of various kinds. The Nobel Center aspires to involve visitors from all over the world and become an independent arena, something that is needed now more than ever, where major issues of the future can be discussed. The Nobel Prize and the Nobel Laureates’ contributions to the greatest benefit to mankind is the starting point of all activities in the Center.

THE PROJECT HAS A LONG HISTORY but got a fresh start in December 2011, when the city of Stockholm and the Nobel Foundation reached an agreement to work together to construct the Nobel Center on Blasieholmen in Stockholm. The building’s design was determined by an international architectural competition. In April 2014, it was announced that David Chipperfield and Christoph Felger won the contest with their elegant and timeless building. Most of the building’s financing will come from the Erling-Persson Family Foundation and the Knut and Alice Wallenberg Foundation, which will contribute SEK 800 million combined.

DURING 2016, Anna Sjöström Douagi, previously executive director of the Young Academy of Sweden, was appointed programme director of the Nobel Center and will be responsible for developing future public programme activities at the Center. In cooperation with the City of Stockholm, a project focusing on the Center’s educational content also was initiated. Annika Hedås Falk, former head of Södra Latin upper secondary school in Stockholm, is leading the effort to develop a school programme for students and teachers based on the idea behind the Nobel Prize and its unique combination of subject fields. Exhibition experts from throughout the world met in Stockholm in March to provide valuable input regarding the design of future exhibitions at the Nobel Center.

AN IMPORTANT MILESTONE for the project was the Stockholm City Council’s approval of the detailed local plan for the Nobel Center in April 2016. A further development of the building presented in May included a construction programme and a revised auditorium adapted for various forms of meetings throughout the year. The Nobel Center's restaurant was moved to the top of the building, which will offer visitors a striking view of Stockholm. The building plans ensure that 80 per cent of the Nobel Center will be devoted to public space and made available to the public.

In February 2017, the Stockholm County Administrative Board also approved the plan, rejecting all the appeals to the project.

CONSTRUCTION of the building will be financed through donations. During the year, nearly SEK 1.1 billion of the SEK 1.2 billion estimated total cost of the project was raised. One of the largest foundations in Denmark, the A.P. Møller Foundation, donated SEK 50 million to the Nobel Center. A decisive factor in the decision to make the donation was the Nobel Center’s focus on inspiring students and teachers around the world.

At a press conference in November, the Swedish government announced that it will contribute SEK 40 million annually to the Nobel Center’s operations for three years from the time it opens. Together with increased support from the City of Stockholm, a total of SEK 60 million per year has been added for the Center’s operations for the first three years.

NOBELHUSET AB is the company formed to plan, construct, own, administer and develop the Nobel Center. Programme development is being carried out within the framework of the Nobel Center Foundation.

“The Nobel Prize plays a vital role in the image of Sweden as a leading research nation, and the Nobel Center will be the base for public activities, where the importance of research and innovation is highlighted.”

HELENE HELLMARK KNUTSSON, MINISTER FOR HIGHER EDUCATION AND RESEARCH
Nobel Center will be an accessible and current meeting point with a wide range of public activities.

Nobel Center’s educational programme will be valuable for both teachers and students.

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The Nobel Week in Focus

After two months in the limelight since the announcements in October, the year’s Nobel Laureates finally arrived in Stockholm. It was a week focusing on the new Laureates and their contributions to the greatest benefit to mankind, but also a week of instructive interaction, unforgettable moments and faith in the future.

VIOLINIST JANINE JANSEN performed as a soloist at the Nobel Prize Concert, playing Brahms’ Violin Concerto. The conductor for the evening was Italy’s Gianandrea Noseda, who treated the audience to his interpretation of Beethoven’s Symphony No. 6 together with the Royal Stockholm Philharmonic Orchestra.

THE 2016 NOBEL MENU was composed by Chef Sayan Isaksson and Pastry Chef Daniel Roos (pictured), both acclaimed Swedish sources of culinary inspiration. For dessert, cloud of sudachi fruit, cloudberry sorbet, miso crumbs and deep-fried rice paper were served. Some 40 chefs prepared the menu for four days before the Nobel Banquet at the City Hall, which hosted 1,350 guests.
THE NOBEL BANQUET CONCLUDES with students approaching with massed standards on the grand staircase and balustrade. The toastmaster of the evening, Johanna Kuniholm, introduced the Nobel Laureates who gave banquet speeches.

IN HOMAGE TO ALFRED NOBEL who spent his final years in Sanremo, Italy, where he died on 10 December, 1896, the Chamber of Commerce of Imperia and the Town of Sanremo send flowers to decorate the Concert Hall and the City Hall in Stockholm every year.
THE NOBEL WEEK BEGINS with a visit to the Nobel Museum at Stortorget in Gamla Stan by all of the Laureates and their families. Then press conferences and Nobel Lectures hosted by the prize-awarding institutions and a series of programme events follow. Laureate in Economic Sciences Oliver Hart visited the Nobel Museum with his grandchildren Gabriel, 10 and Jamie, 6.

WHEN THE NOBEL PRIZE AWARD CEREMONY HAS ENDED, friends and family come up on stage at the Concert Hall to congratulate the Laureates. Physics Laureate Michael Kosterlitz embraces his Swedish wife Berit Kosterlitz in a moment of happiness.
KACI KULLMANN FIVE, chair of the Norwegian Nobel Committee, passed away at the beginning of 2017. She became a member of the Norwegian Nobel Committee in 2003 and was elected its chair in 2015. She was also a member of several boards within the Nobel sphere.

“As chair of the Nobel Committee she was engaged, inclusive and solution-oriented. She combined professionalism with humour and personal warmth. With the passing of Kaci Kullmann Five, the committee has lost a wise and unifying leader, a dear colleague and a good friend.”

BERIT REISS-ANDERSEN, VICE CHAIR, AND OLAV NJØLSTAD, SECRETARY
THE CLARINETTIST MARTIN FRÖST and the multi-instrumentalist Magnus Lindgren performed with the Swedish Chamber Orchestra at the Nobel Banquet in a divertissement directed by Linus Fellbom. The Adolf Fredrik's Girls Choir also performed during the evening. The illuminated floral decorations in the Blue Hall were created by Per Benjamin.