100 years of the Marcel Benoist Swiss Science Prize

Bern, September 2020

Introduction

The Marcel Benoist Swiss Science Prize has been awarded annually since 1920. It is named after its founder, the Frenchman Marcel Benoist. Born in 1864, he practised law and lived mainly in Lausanne from 1914 until his death in 1918. Benoist bequeathed most of his wealth to the Swiss Confederation on condition that it would be used to award an annual prize to a Swiss scholar or a scholar resident in Switzerland.

In line with the founder's wish, the decisive criteria for the awarding of the Prize are scientific excellence and usefulness of the work to society. The Prize is open to all disciplines. The laureates are internationally renowned scientists, 11 of whom have gone on to win a Nobel Prize.

The Prize is awarded by the Marcel Benoist Foundation, which was founded in 1920. The Foundation's Board of Trustees includes a representative of each of Switzerland's universities. The Foundation is privately funded. It is chaired by the head of the Federal Department of Economic Affairs, Education and Research EAER.

This brochure has been compiled to mark the centenary of the Marcel Benoist Swiss Science Prize. It shows the thinking and objectives behind the establishment of the Prize and the Foundation in 1920, how they have evolved, and how the founder's legacy continues to be implemented today. It is intended as a general overview and is by no means exhaustive.

1. The founder – the Prize – the Foundation

Who was Marcel Benoist? Very little is known about the man himself as he kept a low public profile and left no personal documents behind, such as letters, a diary or memoirs. Despite the fragmented nature of the records, a clear picture emerges of what Benoist aimed to achieve with his legacy.[1]

1.1 Marcel Benoist

Marcel Benoist was born in France in 1864 to a wealthy, middle class family. His father was a barrister at a civil court in the Greater Paris region. After completing his law degree at the age of 25, Benoist took over from his father and practised until 1898. He then embarked on various trips throughout Europe and started collecting works of art. He subsequently divided his time between his villa and hunting estate near Paris, and his apartment in the centre of the French capital. A friend described him as someone who read a lot, had an inquiring mind and very broad general knowledge, but who led a solitary life.

In 1911, Marcel Benoist began transferring his assets, art collection and library to Switzerland. From 1914, his main residence was in Lausanne. It is not known what prompted him to make the move. There is nothing to suggest he had ties to scientific or cultural circles in the city. The only person who

[1] Unless stated otherwise, the following information is based on the history of the Marcel Benoist Foundation compiled to mark its 75th anniversary in 1995, and on the brochure it published in 2007 (Martin Stuber, Sabine Kraut. *Der Marcel Benoist-Preis 1920-1995. Die Geschichte des eidgenössischen Wissenschaftspreises*, Bern 1995. *Der Marcel-Benoist-Preis*. Die Marcel-Benoist-Stiftung. Bern, 2007).

is known to have been close to him is Gabrielle Duvivier (1885–1976), whose parents he was friends with. She followed him to Lausanne and took care of his home and business affairs.

Benoist died in Paris in 1918. According to his relatives, who remember him as a philanthropist, Benoist had travelled to the poor neighbourhoods of Paris to hand out alms to relieve the widespread suffering caused by an epidemic, but ended up falling ill himself and died aged just 54.

1.2 The legacy

Marcel Benoist wrote his will four years before his death. In it, he bequeathed most of his wealth, his art collection and his library to the Swiss Confederation. He wrote:

> "I give and bequeath to the Government of the Helvetic Republic all the assets registered by myself in Switzerland with the Swiss National Bank in Bern and the Swiss Banking Corporation in Basel. Revenue from these assets shall be used to award annually a single prize to a Swiss scholar or a scholar resident in Switzerland who in the course of that year has made the most useful discovery or study in the sciences that is of particular relevance to human life."[2]

Benoist also stipulated that the Swiss government was responsible for paying his companion Gabrielle Duvivier a life annuity of CHF 6,000 a year from the estate.

It is striking that a number of the provisions in his will are very similar to those in Alfred Nobel's will of 1895. It is quite possible that Benoist was inspired by Alfred Nobel's legacy. However, there are no indications or evidence of this.

1.3 Establishment of the Foundation

The Federal Council accepted the bequest on behalf of the Swiss government. It decided to hand the entire collection over to the city of Lausanne for safekeeping and mandated the Federal Department of Home Affairs FDHA to set up a foundation and to draw up a foundation charter. It also decided to transfer the securities to the Swiss National Bank, which would manage them free of charge.

The foundation deed, which was drawn up by the FDHA, was approved by the federal government on 19 November 1920. The Foundation was established in accordance with Articles 80 and 89 of the Swiss Civil Code SCC. It was named the *Marcel Benoist Foundation for the Promotion of Scientific Research* and was entered in the commercial register for the canton of Bern.[3] The position of Foundation Chair was to be held by the head of the FDHA, which between 1920 and 1928 was Ernest Chuard (1857–1942) from the canton of Vaud. Chuard was familiar with the Swiss higher education sector and the country's eight universities and approximately 9,000 students from his own extensive experience as a researcher and lecturer prior to becoming a federal councillor. From 1894 to 1896 he was dean of the

[2] *Der Marcel-Benoist-Preis*. Die Marcel-Benoist-Stiftung. Bern, 2007, 10.

[3] In its deliberations on the establishment of the Foundation, the Federal Council looked to the creation of the Carnegie Foundation in Switzerland several years earlier. In 1911, Andrew Carnegie (1835–1919), a US industrial magnate with Scottish roots, approached the Swiss president to donate funds to set up the Carnegie Rescuers Foundation in Switzerland. Soon after, in 1912, the Federal Council set up the Carnegie Foundation Switzerland as a federal foundation to recognise those who risk their own lives to save others. – Swiss Federal Archive, E 1004*, Federal Council minutes, decision minutes 09.03.–11.03.1920, 70011818, and https://www.carnegie.ch/en/ueber-uns/history/ (consulted on 7.7.2020).

faculty of natural sciences at the University of Lausanne and from 1907 he was a member of the board of the Federal Institute of Technology in Zurich.[4]

From today's perspective, the founder's intention and the establishment of the Foundation could be said to reflect six guiding principles that are considered basic requirements of strong research and are still just as crucial to its promotion today:

1. *Bottom-up impetus – top-down support*: The creation of the Prize and the establishment of the Foundation stem from the initiative of a private individual. He brought his idea to the Federal Council, who took it up and established the necessary institutional foundations to implement the plan.
2. *National roots – transnational focus*: The Prize is awarded by the Swiss government and as such is firmly rooted in Switzerland. At the same time, it reflects a transnational approach: the founder was a Frenchman living in Lausanne, and non-Swiss scholars are also eligible to be awarded the Prize.
3. *Openness:* The provisions in Benoist's will regarding the Prize are not thematically limited and therefore provide leeway that can be explored and utilised.
4. *Excellence:* The scientific work that is awarded the Prize must be deemed the most useful of all the nominations selected. "La *plus* utile" – as Benoist phrased it in the original French version. It is therefore specified that only cutting-edge science and innovation is eligible for the Prize.
5. *Relevance to society:* In addition to the scientific aspects of the work, the Prize must also take account of its implications for society, and assess the resulting benefits.
6. *Public private partnership*: From the outset, the Foundation and the Prize have been supported by the joint commitment of the State and the private sector: while the allocated funds are of a private nature, the founder's wish is implemented by the federal government, which set up a Foundation for this purpose and is responsible for managing it.

If the founder's wish and the establishment of the Foundation were to be set in motion, structures and regulations for the tasks to be performed by the Foundation were needed. This required a willingness on the part of the leading actors to commit to the project and to ensure that the Foundation's objectives were met.

2. Structures – processes – actors

The regulations drawn up when the Foundation was established defined responsibilities, processes and the composition of the Board of Trustees. Three areas should be considered in more detail: the evolution of the Foundation's organisation, the structure of the selection procedure to determine the prizewinner, and the people responsible for the Foundation's activity.

[4] Oliver Meuwly, Jean-Pierre Chuard: *Ernest Chuard 1857-1942. Die Schweizer Bundesräte. Ein biographisches Lexikon*. Published by Urs Altermatt. Zurich, 2019, 306-311, and Jocelyn Rochat: *Ernest Chuard, le conseiller fédéral malgré lui*. *Schweizerische Zeitschrift für Geschichte*, volume 39, 1989, 171-188.

2.1 The Foundation bodies

Barring a minor amendment, the statutes approved by the Federal Council on 19 November 1920 were to remain unchanged for the next 75 years. Over time, however, some provisions lapsed while others were no longer relevant. In the early 1990s, the Board of Trustees therefore decided to carry out a complete revision of the statutes, which were approved in 1998.

Fifteen years later, and with a view to the upcoming centenary in 2020, the decision was made to reposition the Foundation. Among other things, special attention was paid to the endowment of the Foundation capital, a stronger presence and an enhanced public image, as the following chapters show. The statutes that were revised for this purpose were approved on 28 August 2018 and include the foundation deed and regulations.

The highest body of the Foundation is the honorary Board of Trustees, which is responsible for defining the Foundation's strategy and priorities and for implementing its mission. It is responsible for the selection procedure and for awarding the Prize. In accordance with the foundation deed, it is chaired by the federal councillor responsible for research. It also includes a representative of the Swiss federal institutes of technology in Zurich and Lausanne, the ten cantonal universities and a senior federal official. The State Secretariat for Education, Research and Innovation SERI is responsible for running the Foundation's secretariat. The Foundation Committee, made up of the Chair and the two vice chairs, prepares the Foundation's business for the attention of the Board of Trustees. The Investment Committee, which is chaired by a member of the Board of Trustees, supervises asset management for the Board of Trustees. Officially, the French ambassador to Switzerland has always been a member of the Board of Trustees, although he or she may be represented by another member of staff from the French embassy.

A Patronage Committee was set up in 2017. It unites donors representing globally active companies and foundations, and renowned individuals and organisations, who have committed themselves to the Foundation and to the Marcel Benoist Swiss Science Prize. Its members play an ambassadorial role, helping to secure a successful future for the Prize and attract additional funding. The friends of the Foundation also include other patrons.

2.2 The nomination process

While the Prize has never had to be cancelled for lack of high-quality work, changes have been made to the nomination and selection procedure on a number of occasions. While self-nominations were common during the first fifteen years of the Foundation's existence, the practice of submitting nominations through the Administrative Commission – the original name of the current Board of Trustees – gradually became prevalent. Its members were invited to attend faculty meetings at their respective institutions at an early stage and to submit the name of the eligible candidates together with the relevant documents to the secretariat. A sub-committee would then carry out an initial selection, obtain external expert opinions from Switzerland and abroad, and draw up a ranking for the attention of the full Administrative Commission, which would then make the final decision. Although the number of nominations increased from the late 1980s, in 1993 the Chair felt compelled to insist that from then on, members would have to actively seek nominations to at least equal the then record of 16 nominations.

In view of the centenary, the decision was made to delegate the selection process to the Swiss National Science Foundation from 2018.[5] The aim was to have a nationwide, large-scale screening system in place for nominees, and to guarantee a selection process in line with the defined criteria. The Foundation specifies a rotation based on different academic disciplines, while the SNSF evaluates the nominations received. Prior to that there is a nomination procedure that is open to the entire Swiss research community: researchers, leading members of research institutions and representatives of other public or private institutions can submit nominations. Potential laureates are well-established researchers with great scientific potential. To be eligible for the Prize, nominees must live in Switzerland and spend at least half their time working at a Swiss research institution. The work for which the prize is awarded must have been carried out predominantly in Switzerland.

The evaluation committee set up by the SNSF consists of at least four international experts, members of the SNSF National Research Council and two members of the Marcel Benoist Foundation Board of Trustees, as well as two members drawn from public life. The committee proposes a candidate to be awarded the Prize, and the Board of Trustees then makes the final decision.

2.3 Chairs and members of the Board of Trustees

Ever since it was established, the Marcel Benoist Foundation has been chaired by a member of the Federal Council. To date, the Foundation has been chaired by one woman and 13 men, who were elected to the highest state authority from the cantons of Basel, Bern, Fribourg, Geneva, Lucerne, Neuchâtel, Ticino, Vaud, Valais, Zug and Zurich. The longest term of office was 25 years, and the shortest less than one year.[6] As a result of the restructuring of the departments that came into effect in 2013 and which saw education, research and innovation combined under the Department of Economic Affairs, Education and Research EAER, the Foundation has since been chaired by the head of the EAER.

Since 1920, the Board of Trustees (formerly Administrative Commission) has had 94 members. Most of the university representatives have been full professors, many of whom are also former laureates. Although nominated by the Federal Council, the appointments are made in close collaboration with the rectorates of the universities. Care is taken to ensure a balance in terms of representation of regions and specialist fields, although on the basis of the subject provisions that were applicable until 1996, individuals from the fields of chemistry, physics and medicine made up the vast majority. The upper age limit is 70 and the maximum term of office is 16 years. Until 2012, the federal government was represented by the director of the Federal Office of Public Health FOPH, part of the Federal Department of Home Affairs FDHA. It has since been represented by a senior executive designated by the EAER with links to scientific research. The French ambassador has generally been represented by individuals from the natural sciences. Until 1942, the then Administrative Commission also included a representative of Marcel Benoist's family.

[5] EAER/SERI – SNSF. *Leistungsvereinbarung 2017-2020*, 31 May 2017. Annex, *Bereitstellung von Leistungen*. https://www.sbfi.admin.ch/sbfi/de/home/forschung-und-innovation/forschung-und-innovation-in-der-schweiz/foerderinstrumente/nationale-institutionen-der-forschungs--und-innovationsfoerderun.html (consulted on 7.7.2020).

[6] See Annex 1.

3. Available funds – regulations for the award

Besides its structural development and the participation of the figures on its Board of Trustees, the Foundation has also been primarily shaped by the funds at its disposal. The key criteria for awarding the Prize have been amended several times and have played an important role in extending the range of subjects eligible for the Prize.

3.1 Foundation assets and prize money

When it was established, the Foundation had assets in the form of securities worth around CHF 1 million, an art collection estimated to be worth CHF 755,000 in 1933, and a library comprising some 600 books. Ownership of the collection was transferred to the city of Lausanne in 1965 for CHF 750,000.

The value of the securities portfolio has repeatedly been subject to significant fluctuations, which has affected the prize money. While at first it amounted to around twice the annual salary of a full professor at the time, this was no longer the case in the years after the Second World War. The amount available for the award was reduced to CHF 20,000 in 1958, and the reserve fund had to be used.

The Foundation was well aware that the value and prestige of a prize is primarily reflected in the prize money. Its efforts to secure donations in subsequent years were only moderately successful, however. The prize money was increased to CHF 50,000 in 1974, and the death of Gabrielle Duvivier in 1976 meant the life annuity of (by that time) CHF 15,000 that the Foundation had previously had to pay out every year was discontinued. There was to be no increase in the Foundation capital, however: the request submitted by the Foundation to the federal government in 1963 asking for a capital increase failed to win approval from the Federal Finance Administration. Thanks to a generous donation on the occasion of its 75th anniversary, the Foundation's assets increased to over CHF 3 million and as a result were transferred for the first time to a private asset management firm. In the course of the financial market developments of 2007 and 2008, the Foundation's assets fell to CHF 1.8 million.

The decision taken by the Board of Trustees on the initiative of then Chairman, Federal Councillor Johann N. Schneider-Ammann, to reposition the Foundation and to recapitalise its activities through private donors in order to establish a sustainable basis in view of the approaching centenary, was of pivotal importance. This significantly increased the Foundation's assets, with some CHF 19 million being secured from private donors by 2020 and prize money of CHF 250,000 being made available. The Investment Committee and investment guidelines which were established in this context reflect the Foundation's efforts to strengthen the public-private partnership, to professionalise its asset management and to continue to grow its assets.

3.2 Award criteria and subject areas

The provisions outlined by Marcel Benoist in his will regarding the awarding of the Prize were formulated in a general manner, but in stating that to be worthy of the Prize, a scientific discovery had to be "of particular benefit to human life", they nevertheless set out the general line of approach. The Foundation was thus responsible for defining the criteria on which the nominated work would be assessed. Although the descriptions used have been modified in line with the relevant scientific language of the time, from the very beginning the Prize has always been awarded to recognise quality and excellence and work whose originality and innovation, relevance and impact set it apart.

Prizewinners have always had to be well-established scientists with a corresponding proven track record.

A historical description of what the Foundation has considered important for human life over the years would require extensive explanations that are beyond the scope of this document. It should be noted that until the early 1990s, the Prize was primarily awarded for work in the sciences, with life sciences and medicine predominating. While the focus was initially on health, over time the Prize was increasingly awarded for work that – using the terminology from the revised Swiss Federal Constitution of 1999 – benefited the promotion of common welfare.[7] This included biology, geography, zoology and environmental sciences.

The awarding of the Prize for the first time in 1939 for work carried out in basic research was an important step. The Prize was jointly awarded to two researchers for the first time in 1966. It would be a while longer before the humanities and social sciences would be included: the abovementioned donation to the Marcel Benoist Foundation in 1996 was linked to a desire to expand the fields that could be considered for the Prize, and this change was set down in the revised statutes in 1997. The Prize has since been open to all academic disciplines, provided the required quality and excellence criteria are met.

4. Laureates – publicity – award ceremony

This document refrains from appraising the research activities of the various laureates. To do justice to their achievements, one would have to consider not only their work per se, but also the relevant historical context and their personal backgrounds.[8] The following is thus intended as a general overview, looking at how the Prize has been perceived by the public and the importance attached to it.

4.1 Laureates

If one were to classify the laureates of the Marcel Benoist Swiss Science Prize on the basis of their professional activities, it would soon be evident that in the vast majority of cases, the Prize has been awarded for work carried out at universities or public research institutes. Six prizes have been awarded to researchers from the private sector. The fact that most laureates up until 1996 were active in the natural sciences, medicine and life sciences is due to the narrow scope of the award provisions up to that point. In the vast majority of cases, the Prize was presented to nationally and internationally

[7] The Swiss Confederation "shall promote the common welfare, sustainable development, internal cohesion and cultural diversity of the country". Federal Constitution of the Swiss Confederation of 18 April 1999, Article 2, paragraph 2.

[8] "Science prizes tend to distort the history of science. Individuals are singled out and glorified, when they should instead be seen as part of a historical development. You need luck and chance to be on your side to be successful and to be selected. Prizes can hardly do justice to the brave men and women who selflessly devote themselves to a goal that is then achieved by others." Quote by Richard R. Ernst, Marcel-Benoist prizewinner and Nobel laureate. Richard R. Ernst. Nobelpreisträger aus Winterthur. Autobiographie in Zusammenarbeit mit Matthias Meili, Baden, 2020, 173.

renowned figures with a broad-based track record who were professionally active in academia. Eleven laureates have gone on to win a Nobel Prize.[9]

For laureates, the Prize mainly serves as recognition of the knowledge gained or insights acquired. However, it also shows appreciation of their contribution to the promotion of science and the associated common benefits, as well as their dedication and commitment. Taking only a retrospective view would be short-sighted, however. The increased visibility and associated profile boost that come from being awarded the Prize can help motivate prizewinners to continue to achieve excellence. This in turn can increase the competitiveness of their own institution,[10] and, through partnerships, boost research activity at other higher education institutions.[11]

4.2 Public image

At the meeting to establish the Marcel Benoist Foundation on 9 March 1920, the Federal Council stated that "the task of informing the press on this matter falls to the FDHA".[12] This remark shows that public information was included in deliberations on the Foundation's activities from the outset, although in the first 30 years it remained very modest. Initial attempts to raise the Foundation's profile began in the late 1950s. Contact was established with the newspapers, and in 1962 the award ceremony was broadcast live for the first time on the German-speaking Swiss news. However, the Prize's public profile was still relatively poor and the Foundation's media impact remained weak, as bemoaned by its secretary in 1991.

With its 75th anniversary approaching, the Foundation explored new avenues in terms of communication, calling on an external consultancy to overhaul its public image and redesign its visual identity. At the turn of the millennium, it decided to systematically enhance the Prize's image and to hone its profile in line with the newly-created 'Swiss Science Prize' branding. Through the proactive involvement of the media and other measures within the scope of the award ceremony, it also endeavoured to raise public awareness of the Prize and to gain a broader foothold among the science community, policymakers, society and business, as well as among the next generation of scientists. At the same time, it aimed to highlight the excellence achieved in teaching and research, and to raise Switzerland's profile as one of the world's strongest scientific powers.

4.3 The award ceremony

Up until the mid-1980s, the Prize was awarded at a low-key, exclusive event for a small circle of carefully selected guests. As a result, it was largely overlooked and attracted little attention outside of the close circles of laureates. The event was hosted by the prizewinner's institution. The first public award ceremony was held in 1994. Posters advertised the event and speeches by the Chair and prizewinner promoted Switzerland as a location for education and research. Since 2017, the Prize has been awarded at a ceremony in the Swiss capital, Bern. In 2020, to mark the centenary, there will be a joint ceremony under the slogan 'Award ceremony of the Swiss science prizes' at which the National Latsis Prize will also be presented. The National Latsis Prize recognises the achievements in basic research of scientists under the age of 40. In addition to the highlight that is the presentation of the

[9] See Annex 2.

[10] Walter Rüegg. *Zwischen Hochschule und Öffentlichkeit*. *Beiträge aus 50 Jahren Universitätsgeschichte und Hochschulpolitik.* Herausgegeben von Joachim Bauer und Ruth Meyer Schweizer, Stuttgart 2016, 139.

[11] Thanks go to Michel Mayor, 1997 Marcel-Benoist prizewinner 1997 and 2019 Nobel laureate, for pointing this out.

[12] Swiss Federal Archives, E 1004*, Federal Council minutes, decision minutes 09.03.–11.03.1920, 70011818.

Prize by the federal councillor presiding the Foundation, young people interested in science will also have the opportunity to exchange views and ideas with the laureates. The award ceremony also offers other figures and circles from public life, industry and politics the opportunity to find out more about Switzerland as a world-renowned research location, to gain an insight into how Marcel Benoist's legacy is honoured and what the Swiss Science Prize stands for.

Outlook

Since the Marcel Benoist Prize was first awarded 100 years ago, there have been substantial developments in the Swiss science and research landscape, bringing profound changes and far-reaching innovations. For example, the number of students at Swiss universities has risen from 9,000 to over 250,000, while the number of higher education institutions has increased from eight to more than 30 in total. Through the establishment of what is now Innosuisse in 1944 and the Swiss National Science Foundation in 1952, the federal government set up national institutions to promote basic research, innovation, young scientists and international science cooperation. It also supports the operation and activities of the Swiss Academies of Arts and Sciences, research facilities of national importance and cooperation with the European Union in education and research. In addition, the federal government awards scholarships to foreign students and pays subsidies to the cantons to cover the tertiary education grants and loans that they award to students. As well as governing the ETH Domain, the federal government supports cantonal higher education institutions and works with the cantons to ensure quality in Swiss higher education. The great commitment on the part of private companies, who bear the lion's share of the costs of research and development should also be noted. Both the State and the private sector contribute to Switzerland's position as one of the world's leading countries for research. It is also worth mentioning that there are now other prizes that recognise scientific work too. The most well-known include the Balzan Prize, the abovementioned National Latsis Prize, the Louis-Jeantet Prize and the Otto Naegeli Prize.[13] Universities also award their own prizes in recognition of scientific achievement.

Against this backdrop, where does the 100-year-old Marcel Benoist Swiss Science Prize fit into the current Swiss science landscape? Can it achieve what its founder intended? Is it conducive to strong and thriving education and research?

One of the key features of the Prize is that it recognises excellence in all academic disciplines on behalf of the Swiss Confederation and celebrates the people behind it. The Swiss chemist, Richard R. Ernst, who won the Marcel Benoist Prize in 1986, and who went on to win the Nobel Prize and many other prestigious science prizes, wrote in his autobiography, published in 2020:

> "Top researchers are strange people, and I include myself in that. You need enormous self-discipline to succeed; you have to place yourself fully at the service of science. […] A scientist therefore sacrifices many personal freedoms. Nevertheless, these are people working away in their labs with their emotional ups and downs whose irrational overtones at first glance

[13] Information on the three prizes can be found at https://www.balzan.org/en/balzan-prize; http://www.fondationlatsis.org/home_page; https://www.jeantet.ch/en/; http://www.otto-naegeli-preis.ch/en/. Mention should also be made of the Swiss Prize for Research in Education, which is awarded on behalf of the federal government and cantons (https://www.bildungsforschungspreis.ch/preis/).

> seem to interfere with objective science. But I still firmly believe that this holistic commitment is essential to progress."[14]

It is now more possible than ever to have direct exchanges with leading researchers and to gain awareness of the human dimension of their activities, particularly in view of measurements of scientific performance that are now conducted globally, such as rankings, benchmarks and effectiveness and efficiency comparisons, but also considering new teaching formats, such as Massive Open Online Courses with video lectures, online interactions and exams. This also means recognising them as actors and role models in designing and implementing education and research processes. This is not only for experts in the field. The nationwide, cross-institutional and interdisciplinary Marcel Benoist Swiss Science Prize, awarded by the Swiss Confederation, offers a unique forum for exchange and dialogue. It allows people to meet leading representatives from the scientific and academic community and to understand the relevance of scientific excellence for national welfare and in addressing societal challenges. The recent COVID-19 pandemic has shown with great clarity the crucial contribution of research towards many aspects of life.

The Prize thus not only helps promote excellence in line with its founder's wishes. It also calls to mind the great importance of research in solving problems and shaping the future. In addition, it highlights the goals of those who achieve scientific excellence and the commitment needed to achieve them. The cooperation between the various stakeholders is particularly important as it fosters transparency and builds trust, and can serve as a model for cooperation between the private sector and the State in the areas of education and research. It therefore play an important part in the country's scientific system.

Over the past 100 years, the Marcel Benoist Swiss Science Prize and the Foundation of the same name have repeatedly faced challenges that have provided an opportunity for critical self-reflection. The conclusions drawn from this, and the subsequent measures taken, mean the Prize can be awarded on the centenary in 2020 from a position that is healthier and stronger than ever, and one that is fit for the future. This has been achieved by successfully reconciling the guiding principles that underpin the Prize – that are as relevant today as ever – with the changing environment. Crucial to this have been the willingness and commitment both to respect tradition and to be open to new ideas, to develop a common understanding in collaboration with the science community, policymakers and industry, and to work in partnership to implement the lessons learned.

[14] Richard R. Ernst. Nobelpreisträger aus Winterthur. Autobiographie in Zusammenarbeit mit Matthias Meili. Baden, 2020, 10-11.

Marcel Benoist Foundation – former chairs

Federal Councillor	Canton	Period
Ernest Chuard	Vaud	1920-1928
Marcel Pilet-Golaz	Vaud	1929
Albert Meyer	Zurich	1930-1934
Philipp Etter	Zug	1935-1959
Hans-Peter Tschudi	Basel-Stadt	1960-1973
Hans Hürlimann	Zug	1974-1982
Alphons Egli	Lucerne	1983-1986
Flavio Cotti	Ticino	1987-1993
Ruth Dreifuss	Geneva	1993-2002
Pascal Couchepin	Valais	2003-2009
Didier Burkhalter	Neuchâtel	2010-2011
Alain Berset	Fribourg	2012
Johann N. Schneider-Ammann	Bern	2013-2018
Guy Parmelin	Vaud	2019-

Marcel Benoist Swiss Science Prize – laureates

Year	Laureate (* Subsequent Nobel laureate)	Subject[15]	Institution/ Company
2020	Rudolf Aebersold	Systems biology	ETH Zurich[16]/ University of Zurich
2019	Nicola Spaldin	Materials research	ETH Zurich
2018	Lars-Erik Cederman	International conflict research	ETH Zurich
2017	Thomas Stocker	Climate research	University of Bern
2016	Johan Auwerx	Nutrition science	EPF Lausanne[17]
2015	Laurent Keller	Microbiology	University of Lausanne
2014	Nicolas Gisin	Quantum physics	University of Geneva
2013	Michael Grätzel	Chemistry	EPF Lausanne
2012	Michael N. Hall	Molecular biology	University of Basel
2011	Michele Parrinello	Physics	University of Lugano
2010	Daniel Loss	Physics	University of Basel
2009	Françoise Gisou van der Goot	Microbiology	EPF Lausanne
2008	Ernst Fehr	Economics	University of Zurich
2007	Ari Helenius	Biochemistry/cell biology	ETH Zurich
2006	Timothy J. Richmond	Molecular biology	ETH Zurich
2005	Othmar Keel	History of religion	University of Fribourg
2004	Adriano Aguzzi	Neuropathology	University of Zurich
2003	Denis Duboule	Biology	University of Geneva
2002	Rüdiger Wehner	Zoology	University of Zurich
2001	Ruedi Imbach	History of philosophy	University of Fribourg
2000	Dieter Seebach	Chemistry	ETH Zurich
1999	Luzius Wildhaber	Law	University of Basel
1999	Paul Müller	Law	University of Bern
1998	Jürg M. Fröhlich	Physics	ETH Zurich

[15] Designation as per the terminology used at the award ceremony, without claiming to cover all scientific fields studied by laureates.
[16] ETH Zurich = Swiss Federal Institute of Technology Zurich
[17] EPF Lausanne = Swiss Federal Institute of Technology Lausanne

1997	Michel Mayor*	Astronomy	University of Geneva
1996	Bernard Rossier	Pharmacology	University of Lausanne
1995	Henri Isliker	Immunology	University of Lausanne
1995	Alfred Pletscher	Pharmacology	University of Basel
1994	Martin Schwab	Neurobiology	University of Zurich
1992	Gottfried Schatz	Molecular biology	University of Basel
1991	Kurt Wüthrich*	Biophysics/molecular biology	ETH Zurich
1991	Duilio Arigoni	Biochemistry	ETH Zurich
1990	Werner Stumm	Ecology	ETH Zurich
1990	Hans Oeschger	Atmospheric physics	University of Bern
1990	Bruno Messerli	Geophysics	University of Bern
1989	Niklaus Wirth	Computer science	ETH Zurich
1988	Ulrich Lämmli	Molecular biology	University of Geneva
1987	Maurice E. Müller	Clinical medicine	University of Bern
1987	Martin Allgöwer	Clinical medicine/surgery	University of Basel
1987	Hans R. Willenegger	Clinical medicine/surgery	University of Basel
1986	Karl A. Müller*	Solid state physics	IBM
1986	Johannes G. Bednorz*	Solid state physics	IBM
1985	Richard R. Ernst*	Physical chemistry	ETH Zurich
1984	Harald Reuter	Pharmacology	University of Bern
1983	Hans R. Brunner	Clinical medicine	University of Lausanne
1982	Franz Fankhauser	Ophthalmology	University of Bern
1981	Karl Illmensee	Evolutionary biology	University of Geneva
1980	Hans Kummer	Ethology	University of Zurich
1979	Michel Cuénod	Neurobiology/biochemistry	University of Zurich
1978	Nils K. Jerne*	Microbiology/immunology	Basel Institute for Immunology
1977	Hans Günthard	Physical chemistry	ETH Zurich
1977	Edgar Heilbronner	Physical chemistry	University of Basel
1976	Jean Charles Cerottini	Oncology/immunology	University of Lausanne
1976	Theodor K. Brunner	Oncology/immunology	University of Lausanne
1976	Jean Lindenmann	Oncology/immunology	University of Zurich
1975	Mahmut Gazi Yasargil	Clinical medicine/surgery	University of Zurich
1974	Ewald Weibel	Anatomy	University of Bern
1973	Lucien Girardier	Physiology	University of Geneva
1973	Georges Spinnler	Engineering/physiology	EPF Lausanne
1973	Eric Jéquier	Physiology	University of Lausanne
1972	Albert Eschenmoser	Organic chemistry	ETH Zurich

1971	Manfred Bleuler	Psychiatry	University of Zurich
1970	Charles Weissmann	Biochemistry	University of Zurich
1969	Walter Heitler	Quantum mechanics	University of Zurich
1968	Michel Dolivo	Neurology/physiology	University of Lausanne
1967	Kurt Mühlethaler	Botany	ETH Zurich
1967	Hans J. Moor	Molecular biology	ETH Zurich
1966	Alfred Tissières	Biochemistry	University of Geneva
1966	Edouard Kellenberger	Molecular biology	University of Geneva
1965	Georges de Rham	Mathematics	University of Lausanne
1964	Vladimir Prelog*	Biochemistry	ETH Zurich
1963	Gerold Schwarzenbach	Analytical chemistry	ETH Zurich
1962	Alfred Hässig	Haematology/immunology	University of Bern
1961	Werner Kuhn	Physical chemistry	University of Basel
1960	Pierre Duchosal	Clinical medicine/cardiology	University of Geneva
1959	Albert Wettstein	Organic chemistry	Ciba AG, Basel
1958	Klaus Clusius	Physical chemistry	University of Zurich
1957	Jakob Seiler	Genetics/evolutionary biology	ETH Zurich
1956	Siegfried Rosin	Genetics/haematology	University of Bern
1955	Max Holzmann	Clinical medicine/cardiology	University of Zurich
1954	Ernst Hadorn	Evolutionary biology/genetics	University of Zurich
1953	Alfred Fleisch	Physiology	University of Lausanne
1952	Otto Gsell	Clinical medicine	University of Basel
1951	Anton Fonio	Clinical medicine	University of Bern
1950	Emile Guyénot	Evolutionary biology/genetics	University of Geneva
1949	Albert Frey-Wyssling	Molecular biology	ETH Zurich
1948	Hans E. Walther	Clinical medicine/oncology	University of Zurich
1947	Tadeus Reichstein*	Organic chemistry	University of Basel
1946	Alexander von Muralt	Physiology/neurology	University of Bern
1945	Ernst A. Gäumann	Biology/agronomy	ETH Zurich
1944	Robert Mattey	Evolutionary biology/genetics	University of Lausanne
1943	Paul Scherrer	Nuclear physics	ETH Zurich
1942	Arthur Stoll	Pharmacology	Sandoz AG, Basel
1941	Hermann Mooser	Infectious diseases	University of Zurich
1940	Friedrich T. Wahlen	Agronomy	Swiss Federal War Food Office
1939	Fritz Baltzer	Evolutionary biology/genetics	University of Bern

1938	Leopold Ruzicka*	Endocrinology	ETH Zurich
1937	Charles Dhéré	Analytical chemsitry	University of Fribourg
1936	Alfredo Vannotti	Clinical medicine	University of Lausanne
1935	Jakob Eugster	Endocrinology/genetics	University of Zurich
1934	Max Askanazy	Oncology	University of Geneva
1933	Robert Doerr	Infectious diseases	University of Basel
1932	Maurice Lugeon	Engineering sciences	University of Lausanne
1931	Walter R. Hess*	Physiology/neurology	University of Zurich
1930	Aloys Müller	Physiology	University of Fribourg
1929	Paul Niggli	Mineralogy	ETH Zurich
1928	Jules Gonin	Ophthalmology	University of Lausanne
1927	Hermann Sahli	Clinical medicine	University of Bern
1926	Emile Argand	Geology	University of Neuchâtel
1925	Alfred Gysi	Dentistry	University of Zurich
1924	Heinrich Zangger	Toxicology	University of Zurich
1923	Albert Heim	Geology	University of Zurich
1922	Paul Karrer*	Organic chemistry	University of Zurich
1921	Conrad Brunner	Clinical medicine/surgery	University of Zurich
1920	Maurice Arthus	Immunology	University of Lausanne