KALLE VIRTAPOHJA

On the Pulse of Heart Research

1968–2018

FIFTY YEARS OF THE PAAVO NURMI FOUNDATION

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Contents

The purpose of the Paavo Nurmi Foundation, according to Section 2 of its constitution, is to promote the research of heart and vascular diseases and public health in Finland, and to support the work being done in these fields by distributing grants and financial aid for carrying out these tasks, and also to support and contribute to the intentions of the Foundation in any other way accepted by the Board.

Paavo Nurmi made a sensational American Tour in 1925 winning more than 50 races within 5 months. The first meet was arranged by the Finnish-American Athletic Club. Paavo broke the World indoor records both in 1 Mile and 5000 meter races that night.

Greetings from the Chair

My grandfather, Paavo Nurmi, set up the foundation which bears his name in 1968. Despite its title, this is not a sports foundation, although this is often the first association that comes to mind, nor is it a family foundation.

The Foundation's mission is to contribute to research into heart and vascular diseases and public health.

Paavo Nurmi was actively involved in the issues of his day and specifically wanted to support medical research in Finland. Heart and vascular diseases were a major public health problem at the time when the Foundation was established.

I am the third member of my family to serve as chair of the Foundation. This has been a very important role for me personally; it has given me a living link to my grandfather, whom I never met.

Every chair's term has had its own character. Mine is just beginning. Throughout, the Foundation has striven to be forward- looking and help find solutions to medical problems. Besides traditional research, Foundation grants have often supported a variety of promising new research methods.

The Foundation has gathered the world's foremost scientists at its symposia. The ninefold Olympic Champion has made an impact in his

Mika Nurmi, Chair of the Paavo Nurmi Foundation
(Compic / Paavo Nurmi Foundation)

own time and continues to do so, but today he is especially recognized for the valuable work that has been done in his name for decades.

The Foundation has also furthered its founder's aims through donations, for instance of equipment. This is a practical way of meeting challenges.

The Foundation is celebrating its fiftieth anniversary. This history narrates everything it has achieved in the last half century. It honours all those who have been involved in the Foundation's activities. I would like to thank Dr Kalle Virtapohja, whose PhD from the University of Jyväskylä in 1998 is in sports journalism, for writing this history, and everyone else who has made this book possible. I would also like to thank all those involved in the work of the Foundation for their valuable contribution.

Mika Nurmi
Chair of the Paavo Nurmi Foundation

Author's preface

The Paavo Nurmi Foundation is a typically Finnish foundation, according to Maarit Manninen's research study, *Säätiöt Suomessa* ("Foundations in Finland"). One Finn set it up with a clear mission statement.

Paavo Nurmi established the foundation which bears his name in 1968, to support research into heart and vascular diseases by awarding grants and organizing symposia. The Foundation's income is mainly derived from renting two apartment buildings in the centre of Helsinki.

The history of the first decade of the Foundation, from 1968 to 1978, was written by Juhani Peräsalo, MD. Five hundred copies of the 48-page paperback book were published in 1988. When the Foundation turned 25, it published a report of its activities in English: *The Paavo Nurmi Foundation. Twenty-Five Years 1968– 1993*. This was a 40-page hardback book. The first article, "Paavo Nurmi – The Man and His Foundation" was written by the physician members of the Foundation board, Vesa Manninen and Antti Louhija.

Work on this book, the third history of the Foundation, started when I wrote a biography of Paavo Nurmi, *Mies josta tehtiin patsas. Paavo Nurmen ennätykset, maine ja perintö* ("The Man Who Had his Own Statue: Paavo Nurmi's Records, Reputation and Heritage": Docendo 2017) This work is the life story of the most successful Finnish athlete of all time, his races and his work as a coach, and as an entrepreneur.

In it, I explain how Paavo Nurmi became a national hero, and offer some insights into his activities as a successful businessman and patron. I also briefly tell the story of how the Paavo Nurmi Foundation was established.

This fiftieth anniversary history is an in-depth account of how the Paavo Nurmi Foundation has supported research into heart and vascular diseases and public health in Finland.

Paavo Nurmi was haunted by the fact that his astounding records were only on loan to him. His last world record was broken in the 1940s, just after the Second World War.

Paavo Nurmi wanted to make a lasting impact, so he became a building constructor and built more than 30 apartment blocks from stone in Helsinki and set up a foundation bearing his name. The City of Turku has used Paavo Nurmi's lasting reputation in its marketing. The international track and field athletics competition in Turku, the Paavo Nurmi Games, which is part of the International Amateur Athletics Federation World Challenge Series, helps to keep the name of the Flying Finn alive. A variety of associated events are included in this Paavo Nurmi Festival.

The most important and impressive achievement of all, however, was made by the foundation he established. During its half century-long life, the Foundation has awarded about 500 grants, and around 50 travel grants. Organizing medical symposia is the Foundation's other main activity. The eighteenth Paavo Nurmi Symposium was held in 2016.

An internationally acclaimed and award-winning former director of the Wihuri Research Institute, Professor Petri Kovanen, explains the medical focus of the Paavo Nurmi Foundation. Professor Kovanen, who now manages the Atherosclerosis Research Laboratory at the Wihuri Research Institute, has received grants for his own research from the Paavo Nurmi Foundation. He also had the honour of receiving the Foundation's first international award of 50,000 Finnish marks on the centenary of Paavo Nurmi's birth, 13 June 1997.

Kalle Virtapohja

Medical focus

Petri Kovanen: Paavo Nurmi Symposia promote heart research – Paavo Nurmi's tradition lives on

It is both a paradox and a tragedy that Paavo Nurmi himself suffered from coronary heart disease. After all, he was a physically active top athlete who had no known risk factors for this condition: he was not overweight, did not smoke and as far as we know, his blood pressure and cholesterol levels were normal. A 'perfect' man in terms of cardiovascular health, that is, a man with a healthy heart and with healthy blood vessels, he should have been a role model for all Finns. Nevertheless, Paavo Nurmi had a heart attack in the 1950s before he reached the age of sixty, and about a decade later, in 1968, he was hospitalized for a stroke caused by a blood clot on the right side of his brain, which paralysed his left arm.

When Paavo Nurmi had his heart attack at the turn of the 1950s and 1960s, the incidence of coronary heart disease among working-age men in Finland was high and the associated mortality rate was the highest in the world. Accordingly, there were two extreme cases of men with coronary heart disease. One was the man who had the generally healthier cardiovascular genetic makeup of Western Finns who was the

Professor Petri Kovanen and the Chair of the Paavo Nurmi Foundation, Matti Nurmi, in conversation at the Foundation's fortieth anniversary celebration.
(Paavo Nurmi Foundation)

best athlete in the world, and the other was the typical man with heart trouble, the North Karelian logger from Eastern Finland. In the first case, the cause of the disease remained a mystery, while in the second, the main reason soon became clear. Loggers needed a lot of energy in their diet, but in the remote Eastern Finnish villages the only way to satisfy this need at the time was by eating hard animal fats, which unfortunately raises blood cholesterol to peak levels.

Had the root cause of Paavo Nurmi's coronary heart disease turned out to be a common treatable risk factor, he could have prevented his condition by making substantial lifestyle changes, and this decisive and enterprising man would have made every effort to do so as quickly as possible. But there was no medical advice available to this ruthlessly self-disciplined man whose lab test results were perfect. Paavo Nurmi was left wondering how coronary heart disease developed. So he decid-

ed to financially support the efforts to find out, once and for all, what was causing the disease. This knowledge would then help many patients both in Finland and elsewhere, as well as himself.

Paavo Nurmi's decision was a real stroke of luck for Finnish cardiovascular disease researchers and for the research itself. He established his own foundation to support this work. In 1968, the Foundation was established to further its founder's aims in two ways: organizing international symposia in Finland and awarding research grants to young and promising Finnish researchers.

The Paavo Nurmi Symposia take off quickly

The starting conditions for the symposia were excellent. Pentti Halonen, Vice Chair of the Paavo Nurmi Foundation and Professor of Internal Medicine at the University of Helsinki, was asked to plan the programme for the first symposium. Pentti Halonen was the founder of modern clinical cardiology and basic cardiology research in Finland, and he had forged strong personal relationships with leading international scientists.

The first Paavo Nurmi Symposium was planned quickly and held in 1969 – just a year after the Foundation was established. Professor Halonen asked his London colleague, Sir John McMichael, to help him plan the event. The pioneer of modern cardiology in the UK, McMichael has been characterized as one of the most important clinical researchers of his generation. Like Professor Halonen, he had created a community of researchers in which clinical and laboratory specialists collaborated closely to further the patients' best interests. This set-up worked so well because both professors were surrounded by young physicians who worked hard on their research, continuing late into the night and doing unpaid overtime, at the Royal Postgraduate Medical School at the Hammersmith Hospital

in London and the Wihuri Research Institute at the Salus Hospital in Helsinki.

Professors Halonen and McMichael developed a meeting format which included about twenty invited lecturers, the best in their field at home and abroad. The first professors responsible for planning the symposia were Halonen and Antti Louhija, followed by professors Heikki Frick and Vesa Manninen, later also Professor Kimmo Kontula. All were also members of the Foundation Board; Manninen is still serving as a member, and Kontula served until 2018, when his successor, Professor Juha Sinisalo, Professor of Cardiology at the University of Helsinki, was elected as a new member of the Board.

It is important to emphasize that, unlike in many other cases where the subject is chosen by open application, the Foundation alone decides on the topic of the Paavo Nurmi Symposium. Thus, all the excellent themes are feathers in the cap of the physician members of the board.

Twenty-eight participants were invited to the first Paavo Nurmi Symposium in 1969; six Finns and 22 from abroad. Almost all of them also gave a presentation at this and the next few meetings, and some of the speakers' Finnish cooperation partners were also in the audience. There was always plenty of time for discussion after the presentations, and all those present participated actively. The fact that top researchers in the field gladly came to Finland was particularly significant. The first symposium was a success, and an excellent basis for future events. Thus began a long tradition, boosting Finland's image by association with the legendary international reputation of Paavo Nurmi. The Paavo Nurmi Symposia are well known all over the world – just like the champion runner and later entrepreneur who made them possible.

The researchers who participated in the first few symposia also had the opportunity to meet Paavo Nurmi, who joined them for their evening programme. He enjoyed being there and asking questions about the latest issues. What had they found out about coronary heart disease and how to treat it? Such encounters were surely impor-

tant and unforgettable for both parties. At the meeting after Paavo Nurmi's death, the dinner guest of honour was Nurmi's close friend of many years, President of the Republic of Finland Urho Kekkonen. Kekkonen welcomed the fact that the Foundation was making Nurmi's name known around the world in a new way. In his speech at the dinner, Kekkonen emphasized how important sport is for whole-body wellbeing. As 'homework', he encouraged his listeners to strive for a *mens sana in corpore sano, concluding that* "a good mood is the best doctor".

While the symposia have tended to have a clinical focus, the aim has always been to include a wide range of research related to the theme: from bench to bedside. Indeed, Halonen's and McMichael's robust concept has been retained from one symposium to the next, and without exception it has been a great success. Combining contributions from across the entire spectrum of cardiovascular research, the symposium programme has become increasingly interdisciplinary, ranging from basic laboratory research to pathological anatomy, clinical, genetic and epidemiological studies – according to the framework set by the organizers.

The core idea which McMichael presented in his opening speech at the first symposium remained the scientific bedrock of all the meetings that followed. He stressed the centrality of the facts as they stand, shaping the atmosphere of future symposia by calling for speculation to be kept to a minimum and the focus to be on research results. While this approach may appear harsh, it absolutely did not undervalue scientific debate – on the contrary. The greatest challenge and greatest gift of the symposia has been raising new questions, carving out new research paths into the unknown and generating ideas. This has proved an excellent principle for inviting biomedical researchers with a variety of subspecialties, enabling them to reach a common understanding and rise to the challenges of interdisciplinary research. One clear indication of this success is the fact that participants have returned home from the symposia with more questions than answers.

Symposia on the pulse

The topics of the symposia over the last half century are well worth a closer look. The key issue has been the coronary arteries, and the heart muscle they supply: what damages them, how, and why? This streamlined theme has been the strength of all eighteen symposia. Each individual Paavo Nurmi Symposium has aimed to focus on a live issue. What is the burning question of the day, what new discoveries have been made? What should a multinational meeting of researchers discuss in order to create a vision for the future?

It is no surprise that this demanding challenge was met successfully from the first, as Professor Pentti Halonen 'managed' the first six symposia. Despite suffering from severe illness, he also helped to organize the 1983 symposium, although he was no longer able to participate. This symposium, and the eighth, were chaired by Professor Heikki Frick, who succeeded Halonen as the Head of Internal Medicine Department I, the Cardiology Clinic, at the University of Helsinki. The ninth and following symposia were chaired and speakers selected by young Finnish researchers at the top of their field, both at home and, often, internationally. Ambitious, hard-working medical researchers have stayed up to date with the latest developments in their field and used this knowledge to maintain a high standard over a series of meetings.

The themes and scientific papers at the eighteenth symposium show that the Paavo Nurmi Foundation's strategy has worked perfectly: giving top Finnish experts in the field a free hand to invite the world's leading researchers. The presentations have been published in supplements to international journals, making a key contribution to disseminating scientific knowledge internationally and creating a historical record.

Previous reviews of the symposium strategy – do they still apply?

Two interim reviews of the Foundation symposia have been conducted during its half-century history. The first author was chiefly a biochemist and the second a clinician. Elspeth Smith, Professor of Clinical Biochemistry at the University of Aberdeen, reviewed the Paavo Nurmi Symposia held in the first twenty years as a small contribution to the large number of international conferences on offer. In his speech at the Foundation's twenty-fifth anniversary celebration, Kalevi Pyörälä, Professor of Internal Medicine at the University of Kuopio, evaluated the significance of the symposia for Finnish research into cardiovascular disease.

Professor Pyörälä emphasized that in the early days of the symposia, the level of contact between Finnish researchers and the international scientific community was still considerably lower than in the early 1990s. He also stressed the fact that since the very first symposium, the aim has been to apply the latest scientific findings, following critical review, in clinical practice and patient care. Furthermore, he recalled the impact of the symposia on the development of Finnish cardiovascular research, not least through friendships and scientific contacts leading to research collaboration. This was certainly the case in the 1960s, but today contacts are made at international conferences or through digital communication. One key factor for Kalevi Pyörälä, the opportunity to hear about the latest research results at the Paavo Nurmi Symposia and to apply these in clinical practice, is only rarely likely to be the case now. These days, we get industry news online, hearing or seeing it at home or work daily or even hourly. Professor Pyörälä's description gives the reader a good overview of what a large scientific and collaborative gap the Paavo Nurmi Symposia filled and how they put Finnish cardiovascular research on the scientific map.

In contrast, Professor Elspeth Smith stressed the challenges of basic biomedical research and what hard work such projects require. Despite

all this, the conclusions may be disappointing, when the results do not meet expectations. Perhaps it may take hundreds of small steps forward before the dream of results that can be applied in clinical practice can be achieved. Along such a long and winding road, events where one can meet colleagues from all over the world to discuss, debate and make friends are a particular pleasure. A Paavo Nurmi Symposium is the ideal format for this, in Professor Smith's view: a small number of attendees at a meeting which takes a multidisciplinary approach to a closely defined subject. The perfect conditions to develop ideas are created when clinicians, biochemists, pathologists, cell biologists, epidemiologists and geneticists gather to reflect on the issues related to a clearly specified topic. She also gave full marks to the physical environment where the meeting was held – the historic and elegant Haikko Manor, in beautiful natural surroundings by the sea. And to cap it all, the participants had the opportunity to enjoy a symphony concert at the Finlandia Hall! All this creates the conditions for a close bond with Finland and its culture.

As early as 1989, Professor Elspeth Smith pointed out that "there are already so many [international symposia] that a researcher could spend every day of the year outside their laboratory," whether at international conferences or highly specialized small-scale international events, where researchers in a narrowly defined field get to meet each other. There are even more meetings today. So do we even need small international events like the Paavo Nurmi Symposium anymore? They face stiff competition, not only from other meetings, but also from continuous, even daily digital contact with international researchers, who are 'just a click away.' The explosive proliferation of data, both horizontally and vertically, requires us to keep in touch constantly. Research contacts can be maintained at international congresses several times a year, even on a monthly basis. In this context, a small-scale international meeting in a specialist field, such as blood clots or blood pressure diseases, held in Finland once a decade, is just a drop in the ocean.

The first symposium on the connection between blood fats and coronary atherosclerosis at Haikko Manor in 1989. Professor Elspeth Smith (front row, third from the right, holding her handbag) and behind her, Professor Riitta Lassila (left) Professor Katriina Aalto-Setälä (right). Petri Kovanen (centre, front) arm in arm with Professor Margaret Haberland from Los Angeles, USA (left) and with Professor Ulrike Beisiegel from Hamburg, Germany (right). (Paavo Nurmi Foundation)

Professor Elspeth Smith highlighted one feature that makes the Paavo Nurmi Symposium special. The researchers could leave the hustle and bustle of the city behind and slowdown in natural surroundings – at least for a while. This created the perfect conditions for researchers to 'go offline' and spend time with just a few colleagues. Could this be one reason why the meetings have been so popular? This ideal has had its day in the research community, but we need to acknowledge it. These days the majority of top researchers can both attend lectures and maintain continuous contact with their own laboratory, clinic and partners around the world – with their laptop on the desk and mobile in their pocket. Many of them spend little time in discussions with

colleagues in the evening, when they can almost seamlessly continue communicating internationally from their hotel rooms. Even being present for the entire meeting seems too big a commitment for some busy researchers today.

Nevertheless, we cannot return to the past and must accept the change brought about by technology. Yet, returning to Haikko may be the solution that really works. Indeed, many small-scale cutting-edge international meetings are doing very well. They are usually held in a rural setting once a year, giving participants a chance to slow down. One great example is the annual atherosclerosis research meeting, which is held during the spring holiday at Humlebæk, on the sea coast north of Copenhagen. The venue is a former boarding school next to the famous Louisiana Museum of Modern Art. Another is the European Lipoprotein Club annual meeting in the old Evangelische Akademie near Munich, on the shores of Lake Starnberg in Tutzing, where composer Johannes Brahms found inspiration from the brooding Alpine backdrop. In the United States, small-scale conferences provide similar experiences of an innovative atmosphere in a rural landscape in the mountains or by the sea, such as the Gordon, Cold Spring Harbor and Keystone events. There is therefore every reason to believe that the days of the Paavo Nurmi Symposium are not numbered, as long as the Haikko spirit lives on.

Symposium subjects and their contemporary resonance: a 47-year journey

The first of the eighteen-symposium series discussed arterial thrombosis, which has clearly remained the most popular topic; three symposia were held on the subject (in 1969, 1979 and 2000). It is obvious why this is so important. Arteries become clogged when blood-derived fatty substances, notably cholesterol, accumulates in the arterial wall, and atherosclerotic plaques, or atheromas, develop. Ultimately an atheroma

may become unstable and rupture, thereby triggering the formation of local blood clot, or thrombus, which may then plug the already narrowed coronary artery, causing a heart attack. This condition is the biggest killer in the world and it is what Paavo Nurmi had, too.

So it makes sense that the thrombosis symposium (1979) heard the guru in the field, Dr John R. Vane, describe his understanding of how the body forms molecules called prostacyclins, which stop thrombi forming. Dr Vane, who actually had discovered this molecule, was awarded the Nobel Prize in Medicine for his discovery just a few years after this meeting (in 1982). Another famous guest at this symposium was Professor Russell Ross from Seattle. He presented the theory, then published just before his death in the New England Journal of Medicine (1999), that atherosclerosis is an inflammatory disease. This article, which caused a paradigm shift, gave Ross iconic status among atherosclerosis researchers. The invitation to the symposium of Ross, and especially Vane, three years before the latter was awarded the Nobel, show that professors Halonen and Manninen had their eye on the ball and the event was internationally renowned. Thrombolysis, or treatment to break down blood clots, then balloon dilation and stent placement, followed by preventive treatment to stop clots forming, are victories in cardiovascular medicine. So it was very valuable for top experts in the field to meet and regularly update their knowledge in the field of arterial thrombosis.

The first Paavo Nurmi Symposium in 1969 was particularly significant because the international audience heard about how the thrombolytic drug streptokinase was being tested. Hospital units in Helsinki, Turku, Tampere and Joensuu participated in this extensive treatment trial, which unfortunately did not reduce mortality. This could be because the treatment was started too late, that is when a significant proportion of the heart muscle had already been irreversibly damaged and lost. Thus, this new mode of therapy was initially forgotten. Nevertheless, thrombolysis for blocked coronary arteries with streptokinase was a hot topic at the time and being clinically trialled in other countries.

Thrombolysis treatment with streptokinase has developed over decades into the successful treatments with new drug molecules used today. The topic selection for the first thrombosis symposium is a fine example of how up to date and even visionary the series has been.

The subjects of the next six symposia were also important in maintaining the thematic focus of the series: physical activity (1975, 1997), high blood pressure (hypertension, 1986, 2011) and blood fats (blood lipids, 1989, 2007). The title of the first symposium held two years after Paavo Nurmi's death was "Physical Activity and Coronary Heart Disease." This choice paid homage to Paavo Nurmi's sporting achievements, reflecting both his greatness and his illness. The second meeting on this subject reflected on how physical activity affects heart muscle function. The first meeting on high blood pressure discussed the latest research developments and the second sought answers to the question of how the causes of high blood pressure could be identified and used in selecting patient-specific treatment. The first meeting on blood fats addressed how LDL lipoprotein particles transport 'bad' cholesterol into the coronary artery wall and how cholesterol there causes the arteries to become clogged (atherosclerosis). The second symposium to develop this theme reflected on how 'good' HDL lipoprotein particles remove cholesterol from the coronary artery wall and why they do not always succeed in this important task. The meeting on 'good' HDL cholesterol was ahead of its time, held in the early days of an international debate on why medically increasing HDL cholesterol levels had not reduced the incidence of coronary heart disease and related attacks, but had even the opposite effect. The debate about HDL particles and their significance for cholesterol is still raging, more vigorously than before.

The Paavo Nurmi Symposia created a forum for discussing the following eight more topics: early diagnosis of coronary heart disease (1971); neurogenic and psychological factors in coronary heart disease and its development (1981); managing angina pectoris, the chest pain caused by atherosclerosis (1983); the role of infection and inflammation in vascular disease (1992); the relationship between diabetes and

atherosclerosis (1995); heart rhythm disorders (2003); identifying and preventing risk factors for atherosclerosis in children and adolescents (2006) and most recently, new technologies in heart disease research, diagnosis and treatment (2016). All these remain key issues for international research into cardiovascular disease.

The meeting on infection and inflammation provides an excellent example of how intentionally topical the symposia were. The infection symposium addressed an exceptionally controversial question. How could infection start and continue to harden and narrow the artery wall, eventually causing a heart attack? This was the hot topic at the turn of the 1990s, and the meeting had a specifically Finnish focus. Half of the presenters were Finns, whereas they had averaged a quarter of the presenters at previous meetings. Finland was so well represented because at the time, the country was conducting pioneering research into the role of infection in coronary heart disease. A link between infection and atherosclerosis had been proposed already in 1908 by Sir William Osler, when he originally attributed the cause of this arterial disease to a variety of bacterial infections – even typhus. Later, several types of viral infections have also been proposed to be causally associated with atherosclerosis.

The infection theory found new impetus when the Finns discovered that many patients with chronic coronary heart disease and up to 70% of heart attack patients showed signs of a chronic infection. The cause was a micro-organism called *Chlamydia pneumoniae*, which causes lung infections such as pneumonia. Professor Pekka Saikku described this microbe in his postdoctoral research at J. Thomas Graystone's laboratory in Seattle. Saikku and Graystone led the symposium in a discussion of how this infection, or infection in general, could be a risk factor for atherosclerosis and coronary heart disease. The above discoveries sparked a lively ongoing debate as to whether coronary heart disease should be managed by killing Chlamydia pneumoniae with an antibiotic or with a vaccine to prevent the infection it causes. Would it be possible to repeat the success story with tuberculosis: first find the bac-

terium that triggers the disease, then develop a vaccine and medicines for it, and finally defeat it? The 1992 Paavo Nurmi Symposium focused on this vision. There was a general feeling that eventually even the Nobel Prize could be awarded for this discovery. The infection symposium had strong grounds for speculation, although Sir John McMichael had warned against it.

The *Chlamydia pneumoniae* hypothesis later inspired large-scale drug trials, but the results have unfortunately been negative and interest in overcoming coronary heart disease caused by *Chlamydia pneumoniae* has completely subsided. One key reason why treatment with antibiotics failed is that the microbe cleverly protects itself inside cells where the drugs cannot reach it. Intensive treatment with several drugs would be required, and such experimental treatments are too cumbersome and expensive compared to other treatments for coronary heart disease which have already proved effective.

The meeting also discussed the role of chronic tooth infections in causing coronary heart disease. This Finnish line of research has since continued and flourished, becoming an increasingly important 'export product' of Finnish biomedical expertise. The role of viral infections in atherosclerosis was also debated. Although research presented at the symposia into the role of *Cytomegalovirus* and *Herpes simplex* virus has not made substantial progress, the viral hypothesis is not dead. There has been a lot of research into how influenza viruses increase the risk of a heart attack, although with mixed success. The latest data, however, unequivocally show that infection caused by the influenza virus significantly increases the risk of heart attack. Professor Ville Valtonen, who hosted the infection symposium, may indeed prove far-sighted in suggesting that viruses could trigger a heart attack!

The second issue raised at the infection and inflammation symposium was sterile inflammation of the artery wall, or chronic, persistent, low-grade inflammation, which is not caused by infection. This part of the symposium consisted of a group of speculations that proved right, since inflammation theory has received more and more robust

and broad support around the world year on year. The coronary artery gets particularly inflamed in places where cholesterol builds up, forming cholesterol crystals, and the sterile inflammation triggered by them causes the atherosclerotic plaque in the artery to become fragile, making it more susceptible to rupture. In 2017, the inflammation theory won the day, when it was shown that targeted treatment to control chronic low-grade inflammation may also prevent a heart attack. Thus the 1993 symposium was a visionary event. The questions it raised have since been answered in number of important ways, including clinical ones.

The last Paavo Nurmi Symposium was held in the founder's home town, Turku. In late summer 2016, the "Future Technologies for Heart Diseases" symposium had a new type of programme; the content reflected the ongoing technological revolution and the expectations of biomedicine that this created. Medical technology and research results also heralded radical changes in how heart disease is understood, in terms of pathology, diagnosis and treatment. The format of this symposium included a new element. At a public event on the opening day, the audience had the privilege of hearing Professor Shinya Yamanaka, the Japanese Nobel Prize-winning stem cell researcher, who also had won the Finnish Millennium Technology Prize, give a lecture on his stem cell research. Yamanaka was the international star of the academic part of the symposium, too.

One of the organizers and speakers, Professor Katriina Aalto-Setälä, is applying this knowledge of stem cells in research aiming to regenerate heart muscle activity. Other presenters in Turku included Academy Professors Seppo Ylä-Herttuala and Kari Alitalo, who are absolutely outstanding in their field, investigating how to create new blood vessels from pre-existing blood vessels (angiogenesis). They told listeners about the focus of their contribution to cardiovascular research: stimulating blood vessels to regenerate using gene therapy. When future technologies can be harnessed to treat patients with cardiovascular diseases, growing new blood vessels may be closer to becoming a reality.

Forty-seven years have passed between the first and last symposium. At the first one, all participants were actively publishing cardiologists who were also physicians working with patients. Most of the participants at the last symposium were physicians researching in scientific laboratories accompanied by their doctoral students. The first symposium had 28 participants, and the last, 101. Thus an intimate meeting of physicians gradually grew into a larger event, covering a broader field, with more audience members than speakers. This shift from the clinic to the laboratory has undoubtedly influenced the decision to focus on new technologies. In addition, top biomedical research groups have increasingly moved from hospital clinics to their own or external research departments, and reflecting this shift, the majority of the speakers are physicians conducting full-time research. It appears that many translational biomedical medical practitioners who are leaders in their field no longer have time for actual clinical practice.

Another significant difference compared to the 1960s is the fact that most doctoral students in biomedical research laboratories directed by physicians are biochemists and cell biologists, who are mastering genetics, molecular biosciences and biotechnology. This is also reflected in grant applications to the Paavo Nurmi Foundation. Whereas in the 1960s almost all the applicants were student or graduate physicians, the majority today are researchers with a bioscience background. The multidisciplinary nature and depth of modern biomedical research requires professionals with multiple skills in laboratories where research into cardiovascular disease is carried out, although these are still generally directed by physicians.

Paavo Nurmi Foundation symposia and grants – mutual benefit?

Reflecting on half a century of change, one can turn one's gaze to the past and the future. Much has been learned and we have the benefit of a little hindsight. As the Paavo Nurmi Foundation publicly states,

it supports research into cardiovascular diseases and public health in Finland and organizes high-level symposia on cardiovascular research. The Foundation distributes about €200,000 a year in grants to senior researchers. Organizing a symposium every three years is estimated to cost about €50,000 per year. Is the Paavo Nurmi Foundation offering the right balance of financial support to the symposia and grants to further its aims in the best way possible? Is there room for both activities? It is not easy to compare the symposia and grants, because the actual patient benefit they generate has not been calculated, and it is not really possible to do so. We must be satisfied with a general estimate.

In our global information society, knowledge spreads everywhere at the speed of light. So the original purpose of the symposia, to make Finnish cardiology better known around the world, at the same time bringing new trends in cardiology to Finland, has had its day. We need other reasons to continue holding the symposia. Their strength has been their role as a forum. Finland's junior and senior physicians in cardiovascular research and their partners could meet top international colleagues and establish personal relationships. In the best-case scenario, a junior researcher may get a postdoctoral fellowship in the laboratory of a researcher they admire. Directly or indirectly, this has happened many times. For instance, then Dr Riitta Lassila, now professor and clinical thrombosis researcher at Helsinki University Central Hospital, once had the opportunity to join Professor Valentin Fuster, the world-famous and perhaps the most important American cardiologist, in his laboratory at Columbia University in New York. Professor Fuster was a speaker at the thrombosis symposium in 1980. Another example is the collaboration between the laboratories of Professor Heikki Huikuri, who researches sudden cardiac death in Oulu, and Professor Richard Verrier in Boston. They have been working together ever since Verrier was a speaker at Haikko in 1978.

The future also looks bright in terms of international networking. At the most recent symposium in Turku in 2016, Finnish researchers had

the opportunity to get to know the Nobel laureate Shinya Yamanaka. If a Finnish junior researcher wants to get to Japan in the future and study in the Nobel laureate's top laboratory, the fact that Yamanaka has positive memories of Finland as a research environment will make the Finn stand out from the crowd of international candidates.

What about the grants? As Professor Elspeth Smith wisely put it, the risks involved in research, especially basic research, are great. A year, sometimes even years of work may be wasted. In contrast, even successful trials are only valuable when they are relevant to others besides the researchers themselves. The best guarantee of receiving a grant is earlier evidence of a series of successful experiments with medically significant results. Millions of euros in funding are also granted, often in small amounts, to the very applicants who already have it all. Or to researchers who are finding reliable answers to modest clinical questions, fast. But for medical researchers to cause a paradigm shift, they usually need to abandon traditional thought processes and methods. This sort of approach requires risk financing, even if only to take on a tiny proportion of a large risk.

The author of this volume received a major grant from the Paavo Nurmi Foundation to complete his doctoral thesis work in the 1970s. The subject was new and strange – "cholesterol in fatty tissue" – so funding it meant taking a risk. In the safe hands of two supervisors, professors Esko Nikkilä and Tatu Miettinen, who were leaders in the field not only in Finland but also abroad, the work progressed well, and the results were convincing. However, the new findings in the field were only additive and did not lead to significant changes or applications in heart metabolism research. Nevertheless, the study led to a doctoral thesis, which opened the door to postdoctoral research with professors Joseph Goldstein and Michael Brown at their Dallas laboratory. They had come up with the LDL receptor, changing the perception of how cells and the entire body metabolize cholesterol. This paradigm-changing research was the grounds for their Nobel Prize in 1985. In the Nobel laureates' laboratory, I was able to figure out how statins reduce

blood cholesterol levels. Risk financing by the Paavo Nurmi Foundation thus ultimately bore some fruit.

These few examples strongly support the case for retaining both the grants issued and international symposia organized by the Paavo Nurmi Foundation. Their mutual monetary relationship is obviously balanced by the Foundation's efforts to maintain and develop Finnish cardiovascular research. One particular advantage of a small foundation is its flexibility, enabling researchers to organize symposia on their own terms, and its audacity to risk finance research through grants.

Why are Paavo Nurmi's dreams only coming true now? A journey from past to present

What would happen if a normal-weight, sporty person like Paavo Nurmi developed symptomatic coronary heart disease in 2018, now the Foundation has been active for exactly fifty years? In his day, Paavo Nurmi hoped and expected that the symposia it organized would help to solve the mystery of coronary heart disease within a few years. Can the mystery be solved now, when scientists focusing on research related to coronary artery disease have had half a century to come up with and develop new ideas and methods? Although, over the years, almost 300 risk factors for coronary heart disease have been identified, and new ones are being discovered all the time, the 'classics' which we already knew about in the 1960s still apply: cholesterol, blood pressure and tobacco. Nowadays obesity, and the type 2 diabetes associated with it, are the dominant risk factors for cardiovascular disease worldwide, but these were not a problem for the athlete Paavo Nurmi. Like smoking, they can be left out of the equation.

More than half a century ago, Paavo Nurmi's blood pressure and cholesterol levels were undoubtedly normal according to contemporary medical standards, but they were not sufficient to prevent a 60-year-old man with a completely healthy lifestyle developing coronary heart dis-

ease and having a heart attack. Over time, the upper limits of risk factor levels have been redefined downwards. This drop has been particularly steep for blood pressure. In the middle of the last century the upper limit of normal blood pressure was considered to be the person's age in years +100. So the permitted level for a 60-year-old healthy male was 160. Nowadays the 'normal' reading is less than 130.

The change in cholesterol has been even more dramatic. The North Karelian man's 'bad' or dangerous LDL cholesterol level was, on average, 6 mmol/L (240 mg/dL), whereas the recommended value today is less than half that, or below 3 mmol/L (120 mg/dL). Even this may also not be enough to stop coronary heart disease developing. According to the thesis that Michael Brown and Joseph Goldstein presented as early as the 1980s, the ideal LDL cholesterol level is the one a baby has when it is born, or that of hunter-gatherer populations and small mammals. All of them have an LDL cholesterol level below 1 mmol/L (40 mg/dL). This level of LDL cholesterol prevents coronary heart disease developing, even if other risk factors are present, as unknown risk factors are usually involved in this multi-factorial disease. In 2017, it has been demonstrated that medically reducing LDL cholesterol to around 1 mmol/L 'rejuvenates' atherosclerotic coronary arteries, clearing them of cholesterol. This also reduces the local inflammation. Today, Paavo Nurmi would have received effective treatment to reduce the risk of repeat heart attacks and strokes.

Alternatively, in accordance with today's strict standards, an occupational health specialist would have prescribed him with preventive blood-pressure and cholesterol medication. Nowadays, Nurmi might not have developed atherosclerosis in his coronary arteries, or in his neck and brain arteries, which supply the extremely sensitive brain cells with oxygen and nutrients. Accordingly, if he had lived in the present day, he may never have had coronary heart disease, a heart attack or stroke. If a blood clot had blocked an artery in his heart or brain, however, modern procedures available in acute cardiology units, and in acute and interventional neurology care services of today could have

prevented a heart attack or stroke. In the former case, this is done by opening the blocked coronary artery in his heart (balloon angioplasty) and in the latter, by dissolving the blood clot or sucking it out of the brain. Indeed, Helsinki medics can get stroke patients from first symptoms to treatment in record time. The foundations for this were laid at the first Paavo Nurmi Symposium in 1969, where the results of the first Finnish undertakings to dissolve blood clots were presented and discussed. The physician-staffed ambulances donated by the Paavo Nurmi Foundation have made it possible to transport patients quickly and give them life-saving treatment for acute heart attack or stroke..

Exercise undoubtedly had a crucial protective effect on Nurmi's heart muscle when it suffered from lack of oxygen and the clot suddenly blocked the coronary artery, causing his heart attack. For his time, Paavo Nurmi recovered from his coronary heart disease amazingly well. He went on to live for another sixteen years after his heart attack.

Even today, the first symptom of coronary heart disease is often sudden cardiac death. One of the world leaders in research into sudden cardiac death is Cardiology Professor Heikki Huikuri, who presented his results at the 2016 Symposium in Turku. He explained that in 70% of cases, sudden cardiac death is caused by coronary heart disease. When a blood clot in a narrowed coronary artery suddenly stops oxygenated blood getting to the heart muscle, the heartbeat can become chaotic and the heart muscle may stop pumping blood. Paavo Nurmi's heart coped well with the lack of oxygen caused by coronary heart disease, and he survived.

Thus he was a model and exceptional individual as a patient, too. Did Nurmi receive some kind of home remedy after his heart attack, or did he simply have good genes which kept his heartbeat regular? We know this much – there was no miracle cure, except exercise. Paavo Nurmi had an iron will to conquer the disease and decided to up his exercise levels. His medicine was walking twelve kilometres a day, half in the morning and half in the afternoon. It was an intuitive solution, but now we understand the protective effect of exercise with scientific precision.

At the 2016 future-oriented symposium in Turku, professors Alitalo, Ylä-Herttuala and Huikuri shared gold nuggets of information about how blood vessels can be regenerated and the causes of sudden cardiac death; this new knowledge explains how Paavo Nurmi managed his heart condition. Exercise makes the heart work harder, which helps the coronary arterial tree grow in the heart muscle. The new vessels help to ensure that the heart muscle gets the extra oxygen it needs. Narrowed coronary arteries, in particular, develop new arterioles (branches of an artery leading into capillaries). Thus, while Paavo Nurmi was active as an athlete, his heart muscle repeatedly required extremely high levels of oxygen and even in between his peak performance periods, he still needed much more than average. There is every reason to assume that his coronary arterial tree had grown new branches to ensure that the heart muscle got all the oxygen it needed under physiologically extreme conditions. When atherosclerosis blocked his coronary artery to dangerous levels, the heart muscle had 'backup pipes' to transport oxygen.

This powerful backup system may have effectively prevented sudden cardiac death, which is most often caused by coronary heart disease. It is also likely that regular exercise protected the heart muscle during Paavo Nurmi's regular exercise regime after his heart attack. Even though coronary heart disease crept up on him when he least expected it, Nurmi had the will to keep going in this marathon against it. He ran this race very successfully. His example shows how important exercise is for heart health, which remains true today.

The finish line

Paavo Nurmi gave special support to researchers into the causes and treatment of coronary heart disease. He sincerely hoped that this would help to clarify the mechanisms behind the disease and discover new ways of treating both himself and others. As a man of action, he as-

sumed all of this would happen quickly. However, it did not. Despite all the funding, medical developments, particularly major inventions, take time, and often not a little luck,

Paavo Nurmi suffered from artery disease half a century too soon. But just then, what was needed was someone like him to act as a patron of cardiovascular research. He would be delighted to see that matters of the heart are in so much better shape than they were then, and that he had helped make this happen.

1.

The founder, Paavo Nurmi

The king of the world's race tracks in his day, Paavo Nurmi, was born in Turku on Sunday 13 June 1897. His father was Johan Fredrik Nurmi and his mother was Matilda Wilhelmiina Nurmi (née Laine). Their son was baptized Paavo Johannes.

When he was born, the family lived on the corner of two streets, in the building at number 61 Itäinen Linjakatu (now the name of the street is Kupittaankatu) and number 62 Itäinen Pitkäkatu. As luck would have it, Turku Sports Park had opened just four years ago, and it was right next door.

When Paavo was born, Turku had a population of about 35,000. The city's Finnish and Swedish speakers were competing fiercely for linguistic dominance. The Finnish cycling enthusiasts were keen to found their own sports club, and in 1901, Turun Urheiluliitto, the sports club for Turku-based cyclists, gymnasts, runners and other athletes was

In 1925, Paavo Nurmi made his famous six-month US tour, during which he broke almost 30 world records. (Paavo Nurmi's collection)

born. At the time, Paavo Nurmi was four years old – he joined the club when he was 16 years of age.

Paavo was two when his little sister, Siiri Wilhelmiina, was born. The family then moved to Raunistula, just outside of the city border, where the family lived a few years in the early 1900s until Paavo was old enough to start school. In the spring of 1902, Paavo's other little sister was born – Saara Matilda.

Paavo's father Johan Fredrik bought the family a new apartment on street Jarrumiehenkatu close to the Turku Railway station. This was when his health began to fail, but he knew that he had achieved something lasting or permanent in life, a home for his family. Most importantly, Paavo did not need to start school in Raunistula, which was a rough district at the time.

The housing cooperative had three terraces with eight homes in each, housing at least 24 families. It was normal for families to take subtenants into their little homes. The Nurmis made their own money stretch further – Johan Fredrik made the furniture his family needed.

Paavo played in the yard with the other children at least until he started school. Besides sports, the children loved to go on swimming trips to Ruissalo or Vähäheikkilä. On good days, they went swimming twice. Paavo recalled that the trip to the beach was at six kilometres. So going there twice a day meant that the children were walking 24 kilometres. This was not training, it was just fun, going for a swim.

Paavo started second grade in the autumn of 1904. He was no different from any of the other children in Jenny Lindgrén's class; many of their fathers were workmen, too. His other classmates' fathers included for example a sailor, postman, shopkeeper, machine driver, painter and conductor.

In the spring of 1905, five of his fellow pupils had to repeat the year, but Paavo moved up to grade three easily. Russia suffered defeat by Japan, which weakened the authority of the Tsar. Unrest was growing in Finland, too. The great workers' strike broke out in October, and factory workers' feelings ran high, particularly in Tampere and Helsinki.

The citizens of Turku followed the news of the strike closely, but it did not affect Paavo's schooling. More importantly for him, his mother was pregnant again. At Christmas, Paavo got a little brother, Martti Nikolai.

From 1906 to 1907, scarlet fever was raging through Turku. In January 1907, the Turku papers reported that four children of a farm worker had died of the disease.

In February, schools reopened, and two of Paavo's classmates contracted it first. Then he got ill himself. He was off school for a couple of weeks, but it seems that his parents were able to protect his siblings from being infected.

The situation was really serious, as in 1890, more than two out of five Turku residents with scarlet fever had died. In 1907, more than one in every hundred people in Turku contracted scarlet fever.

This was when Paavo got interested in athletics. The Intercalated Games had been held in Athens in 1906, a decade after the first Olympic Games. There were Finns competing, too. Verner Weckman achieved one gold in the middleweight wrestling and Verner Järvinen took another gold for the Greek discus throw.

Turun Urheiluliitto (Turku athletics club) had some good athletes competing which inspired the boys, such as August Karlsson, who did well in all events – in 1910, he was even considered the most versatile athlete in Finland.

The Southwest Finland branch of the Finnish National Athletics Federation (SVUL) was established in 1906. On Ascension Day 1907, it organized its first spring festival, which became a spectacular annual city event. The athletes marched in formation through the city centre from the Finnish high schools' yard on Linnankatu up to the sports park. The flags were flying and the band playing.

Enthusiasm for athletics spread to different sectors of the population. The boys from the Oltava yard had their own informal sports club, called Toveri (Comrade). They mostly ran races in the surrounding streets. Paavo's age mate Kalle Rauta could not compete with him in running, but he was better at walking on his hands. The friends made

a pact that neither of them would ever take up smoking. Both of them kept their word for their entire lives.

They ran the 1,500 metres around the terrace facing the street, and Paavo came second with a time of 5:43. The winner, Jalmari Viljanen, was nine years older. He was already working, at Vulcan, where he had beaten the metal medals to be awarded to the winners of the yard competition.

The sports park on the other side of the Aura River gradually became part of Paavo Nurmi's life. At the age of ten, he ran on a race track for the first time, in the 1,500 metres, with a promising time of 5:02. The timekeeper was Fabian Liesinen a runner from the local sports club, Turun Urheiluliitto, and he encouraged Paavo to take it up. "Thanks to him, I started making my first plans for the future," Paavo Nurmi wrote of Fabian Liesinen for the Turku Athletics Association's twenty-fifth anniversary publication.

In August 1908, Johan Fredrik and Matilda had one more daughter, Saaka Lahja. Johan Frederick had to earn a living for himself, his wife and five children, two sons and three daughters.

This meant that 1909–1910 was Paavo's last year at school. His average grade for academic subjects was 9.38.

Hard years

In those days, death reaped a rich harvest in the towns of Southern Finland. Various diseases killed almost 700 people in Turku in 1910 – 355 men and 340 women. Paavo's father Johan Fredrik fell ill with tuberculosis and joined those grim statistics in January 1910. He had not lived to celebrate his fiftieth birthday, dying of a haemorrhage just before it.

This was around the time Paavo Nurmi made the decision to become a runner. But his father's death made this more complicated. Perhaps. Or perhaps his father's death made Paavo even more determined

Paavo's brother Martti Nurmi (rear left) and sisters Sarah (front left) and Siiri lived all their lives in Turku. In contrast, Paavo was far more international, if not the most international Finn. Their mother Matilda was widowed in 1910, after which she had to bring up and support her children alone.

to succeed, since he no longer had the security of his father's support. He had to stand on his own two feet.

His mother Matilda buried her youngest, Saaka Lahja, a year and a half after Johan Fredrik. She must have been devastated. How did Paavo feel about his little sister's death? Within two years, he had to bury his father and his youngest sister, and take responsibility for providing for his family and supporting his mother.

This is when he decided to become a vegetarian. His idea was to get his body ready to face the challenges of running. Other Finnish athletes tried this too; we know that Hannes Kolehmainen and Lauri Pihkala did so. At the same time, there would be more meat for his mother and sisters.

Paavo was a bright boy, and could have carried on studying, but his father's death changed everything. His mother had to go out to work, cleaning and doing odd jobs on building sites. She carried heavy loads of bricks and worked hard to support her children, but it was not enough. Twelve-year-old Paavo needed to look for a job, too. Because he was good at running, he became an errand boy for a bakery. Pushing the heavy bread cart gave him strong legs, but he had to forget about running as a career for some time. Later on, Paavo himself said, "I sweated my way up the hill along Kauppiaskatu hundreds of times. That's how I got my strong back and legs."

Paavo's childhood friend and schoolmate Armas Palmroos (Palos) was important to him. Armas' father had gone to America, and he had seen errand boys there. This is probably where Paavo got the idea of becoming one. He put in a good word for Armas, and he got the same job. To say thank you, Armas' mother made 'uniforms' for both boys.

Hannes Kolehmainen – an inspiration

In the Stockholm 1912 Olympics, Hannes Kolehmainen won three golds in the 5,000 metres, 10,000 metres and cross-country running. His win boosted patriotism at home; it was more keenly felt than ever before. It felt so wrong that when Kolehmainen from Finland won, the Russian flag was raised.

Paavo Nurmi joined the Turun Urheiluliitto sports club in the winter of 1914, receiving membership number 596. A special moment for Paavo was the homecoming of the celebrated Olympic hero Hannes Kolehmainen in May 1914. He had been a migrant in America since the Stockholm Olympics. Thousands of people came to Turku harbour to welcome him home.

Turun Urheiluliitto was then the largest sports club in Finland, with 758 members. Hannes Kolehmainen was an inspiring role model for many others besides Paavo Nurmi. Hannes was promoted an honorary

member for the sports club, although he came from another town far away from Turku. The following year, the club membership exceeded 1,000 for the first time.

A couple of weeks after Hannes had returned home, Paavo Nurmi took part in his first official competition. On the last day in May, a national competition was held in Turku. Paavo won the under-eighteens' 3,000 metres with a run time of 10:06.9. The second best runner came in ten seconds later.

The summer of 1914 was shattered by the outbreak of the First World War. News of the war began to appear in the papers every day from the beginning of August. The war impacted on everyday life in Finland, too, although there was no fighting on Finnish territory. Inflation raised prices. Unemployment went up. Groceries became harder to get hold of, and people began to go hungry. A vague restlessness was growing in the shadow of war.

As early as 1915, Paavo Nurmi had developed into one of the Turun Urheiluliitto's top-performing athletes. He also made a leap forward in his personal life – the baker's boy became an apprentice mechanic at Crichton's yard, along with Armas Palmroos. This was the contemporary equivalent of a vocational school, and the boys' tasks included making their own tools. Paavo found a job in the following year at Hugo Ahlberg's machine workshop, at number 8 Amiraalistonkatu, near Turku harbour. Paavo worked there from 1916 to 1919. Despite the world war, or perhaps precisely because of it, there was plenty to do at Ahlberg, which made automatic guns, or cannons, for the Tsarist army.

Within a few years, Paavo Nurmi had become one of the best runners in Finland. He did his military service with the Pori Brigade in the spring of 1919, and at the end of the year, he was invited to Helsinki to train for the Olympics. The regular daily rhythm, sufficient diet and opportunities for exercise showed in Paavo's results. He set off to the Antwerp 1920 Olympics as the great favourite, but in the first race, the 5,000 metres, France's Joseph Guillemot sprinted ahead. In the 10,000

metres Nurmi was ready for him, and won his first Olympic gold medal. Two days later he received another gold medal in cross country. The third gold medal came in the team competition, when Liimatainen and Koskenniemi rounded off Finland's great success. Paavo Nurmi's total haul was impressive: three gold medals and one silver.

Four years later, in June 1924, while Paavo Nurmi was training for the Olympics in Helsinki, he broke two world records on the same evening: the 1,500 and 5,000 metres.

In the Paris Olympic Games, he won all his races, including the 1,500 and 5,000 metres within a few hours of each other. The 10,650-metre cross country was on a baking hot day. The mercury climbed to 55 degrees, and it was over 40 degrees in the shade, too. Thirty-nine runners set off. Many fainted or were forced to drop out due to dehydration, so just fifteen runners reached the finish line. Paavo Nurmi surged to victory in 32:54.8 minutes. Another Finn, Ville Ritola, came in second, one and a half minutes behind him.

Finland also won the cross-country team competition. And in the 3,000- metre team race, Paavo Nurmi got his fifth gold medal.

After the Paris Games, cross-country running, the cross-country team competition and 3,000-metre team race were removed from the Olympic athletics programme. So the Finnish medal machines were shut down! Nevertheless, at the Amsterdam Olympics in 1928 Paavo Nurmi still won one more gold in the 10,000 metres and two silver medals, in the 5,000 metres behind Ville Ritola and the steeplechase behind Toivo Loukola, yet another Finn.

After Paris, Paavo Nurmi was world famous. The timing of the US competition tour was perfect – in the winter and spring of 1925, he was at the top of his game. He ran 55 races, winning almost every one. No wonder US President Calvin Coolidge invited the Flying Finn to the White House.

Having done his bit to boost Finland's reputation in the United States, he returned to Turku at the beginning of June, and President Relander invited him to the Finnish presidential summer residence,

Kultaranta, which is quite close to Paavo's hometown Turku. The president awarded him the Order of the White Rose of Finland.

In America, Nurmi broke 29 world records, and the local journalists invented numerous nicknames for him. Most often, he was called the Phantom Finn, a hero with supernatural powers.

In March, Paavo Nurmi ran two races over the border in the Canadian ice-hockey cities of Hamilton and Toronto. But it was not all a bed of roses. On his US tour, Nurmi was hampered by the amateur competition rules, which meant he was banned from competing three times. Once Nurmi had made his name as a superhuman record-breaking machine, American promoters and competition organizers felt free to advertise races as record breakers. The crowd felt cheated if this did not happen, and the promoters took it out on Nurmi, but the American Athletics Union was on his side. If he had not promised that he would break a record, it was not permitted to advertise the race as such.

According to the amateur competition rules, Nurmi was entitled to a daily allowance of just eight dollars plus expenses. Competition organizers who had not managed to attract Nurmi to their races also caused problems. Organizing committees acted extremely selfishly. If Nurmi could fill the stands, he was paid the requested rate. But if the star runner could not be enticed to attend, they were prepared to ban him from competing. In the spring, Nurmi's interpreter and manager Hugo Qvist had to respond to rumoured demands for a thousand dollars in compensation.

The charges were withdrawn, and Nurmi went on to run on the west coast, in San Francisco and Los Angeles. The highlight of the tour was the 880 yards race against US half-miler Al Helffrich at the end of May in New York. Twenty thousand spectators came to the Yankee Stadium to watch Nurmi lose "for the first time", as the papers put it.

Nobody wanted to remember or accept the legendary runner's defeats. But frankly, there were other defeats in those 55 competitions. He dropped out of the 5,000 metres in March, conceding victory to Ville

On his 1925 US tour, Paavo Nurmi met a lot of Finnish Americans. In Minneapolis they published a special souvenir magazine to commemorate his visit. He was received at the train station by Consul A.T. Jalkanen, with an orchestra and a large crowd.

Ritola, and in two handicap races, his opponents were so far ahead of him in the start that he could not catch up.

Paavo Nurmi did a second US tour in 1929. Last time, he had run too many races, so this time, he competed more tactically. At the age of 31, he was no longer the sensation he had been last time round.

The rules permitting only amateurs to compete were a peculiarity of the period. In a way, they made athletics pure and holy.

In 1931, the International Amateur Athletics Federation (IAAF) took action and insisted on payment documentation for Paavo Nurmi's German competitions. The documents were eventually delivered to the IAAF and their copies to Finland in the winter of 1932. The chair of the Finnish Athletics Federation, Urho Kekkonen, nevertheless felt

that the documentation was based on second-hand information and rumours. This was not enough to deny anyone the right to compete.

Finland was given until the end of April to respond, but at the beginning of April the IAAF suddenly announced that Paavo Nurmi was temporarily suspended from competing. Urho Kekkonen led the defence, arguing that the IAAF rules provided no grounds for banning individual athletes from competing. This was the task of the national federation according to the rules.

The issue dragged on right up to the Los Angeles Olympics. Paavo Nurmi was ready to crown his career in style – he wanted to win his tenth Olympic gold medal in the marathon. Yet he was not allowed onto the starting line.

As chair of the Finnish Athletics Federation, Urho Kekkonen made an exception for him. Although the star runner was banned from international competitions, he was allowed to compete at home. The following year, he still won the Finnish Championship in 1,500 metres.

Once he had retired from the sport himself, Paavo Nurmi took responsibility for coaching endurance runners at the Finnish Athletics Federation. The runners' results at the 1936 Berlin Olympics and the European Championships in Paris in 1938 were stunning. So they were prepared for success at the 1940 Helsinki Olympics, too. The war brought this to a halt, and the Games were cancelled.

In the mid-1930s, Paavo Nurmi began working in construction. He had trained as a draughtsman in the early 1920s at Helsinki Industrial School. His classmate Oskari Tuominen had made a name for himself as the master builder of the Finnish Parliament building, and Paavo Nurmi did his first building projects with him. The first was a block of flats on a central square, Töölöntori, and the next on the island of Lauttasaari, both in Helsinki today, but Lauttasaari only since 1946.

Paavo Nurmi had a consistent approach: he acquired a plot of land, then built an apartment block, and sold the flats to selected clients. At the same time, he established a gentlemen's outfitters at number 5 Mikonkatu, "the shirt shop", as he called it. His office was in the back

room behind a curtain, and he would peep out to see who the customers were. Construction took up a great deal of time, however, and Paavo Nurmi visited the building sites himself regularly.

Thus running the "shirt shop" was done by a trusted person for most of the time.

For some time in the 1950s, Paavo Nurmi was also a shipowner. He did not know the industry, however, and lost some money, so he sold his only ocean liner, the *Satu*, to a Finnish company called Thombrokers Oy.

After his venture into shipping, Paavo Nurmi stepped up the pace of his construction projects. This is when he got a blood clot in his heart and ended up in hospital. At the time, the only known treatment was rest, and he was prescribed it for ten days. Bed rest gave Nurmi the time to think, and this is when he had his idea of supporting medical research. But the Foundation's time had not yet come.

Paavo Nurmi stopped building in the mid-1960s. Over the course of three decades, he had constructed more than 30 apartment blocks in Helsinki.

In the 1930s, Paavo Nurmi was briefly married to a Turku woman, Sylvi Laaksonen. They had a son, Matti, in November 1932. Sylvi started divorce proceedings less than a year later, in 1933, and the couple divorced in the spring of 1935. Paavo moved to Helsinki, and Matti stayed in Turku with his mother. When, Paavo acquired a summer house in Kallvik, on the east side of Helsinki, at the end of the 1930s, Matti and Sylvi started spending their summers there.

In the winter of 1968, Paavo Nurmi went through a really rough time. Sylvi was diagnosed with cancer and treated in Meilahti Hospital. Paavo took flowers to his ex-wife almost every day. Sylvi died on 15 February. Paavo was not in Meilahti that day, but with good reason. A sudden blood clot in the right half of his brain had paralysed his left hand. So he was in hospital himself.

While he was lying in bed at the Deaconess Institute, Paavo Nurmi decided to realize the plan that had been brewing for years; to estab-

Paavo Nurmi and Matti Nurmi on a summer outing in the late 1930s. Paavo Nurmi's marriage to Sylvi was short-lived, but he still tried his best to do his duty as a father. (Matti Nurmi's collection)

lish a foundation to promote research into heart and vascular diseases and public health in general. The Director of the Deaconess Institute, Professor Lauri Kalaja, was a natural choice for the board, since Paavo Nurmi was one of his patients.

Kalaja knew Professor Pentti I. Halonen well; he became another founding member and honed the Foundation's medical focus.

From the very beginning, the medical choices the board made gave the Foundation a clear medical focus. The best experts in the country were recruited to the board.

Paavo Nurmi had been working with the bank manager Arne Hovitie since the 1940s. Hovitie knew the Master of Laws with court training, Pekka Kare, who was tasked with writing the Foundation's constitution and doing the paperwork to set it up. Paavo Nurmi signed the deed of foundation at the Deaconess Institute on the day of Sylvi's death, 15 February. The Ministry of Justice confirmed the rules quickly, on 29 February 1968.

Pekka Kare's dramatic games in Munich 1972

Pekka Kare (born on 14 April 1931 in the countryside outside Vyborg), already knew Paavo Nurmi slightly in the 1950s. Kare started working for the construction company Maa ja Kallio Oy in 1954, and, as a sporting man, he recognized the hatted gentleman walking around his own site – Paavo Nurmi. Kare completed his legal training in court in 1962 (a requirement to become a Master of Laws with court training), and the following year he became the deputy director of Maa ja Kallio Oy.

"The managing director at Maa ja Kallio Oy was Heikki Sorjonen. The company laid the foundations for the apartments on Pajalahdentie on the island of Lauttasaari," Pekka Kare remembered. He first met Paavo Nurmi when he was working on this project.

Pekka Kare's sport was weightlifting. He was elected as chair of the Finnish Weightlifting Federation in 1967, onto the board of the International Weightlifting Federation in 1968, and as chair of the Nordic Weightlifting Federation in 1969. In the same year, he was instrumental in founding the European Weightlifting Federation, and remained on its board until 2003. Kare inherited his strong international position in the weightlifting world from Bruno Nyberg, who was known as the

Pekka Kare wrote the Foundation's constitution on founder Paavo Nurmi's request. (Pekka Kare's collection)

father of weightlifting in Finland. Nyberg was a founding member of the Finnish Weightlifting Federation (1934) and its long-serving chair, besides chairing the International Weightlifting Federation from 1953 to 1960.

The late 1960s was the golden age of Finnish weightlifting; Pekka Kare was elected as vice chair of both SVUL in 1968 and of the Finnish Olympic Committee the following year.

The grand finale to Pekka Kare's sports leadership career was the Olympic Games in Munich in 1972. The Finns had never been so well represented in Olympic weightlifting before Munich. The reason was clear – Kaarlo Kangasniemi's gold medal at the Mexico Olympics in 1968. His victory assured Finland an unbroken chain of gold medals and made him the most popular sportsman in the country. The fol-

lowing year, he became World Champion, and was European Champion the year after that. This string of medals made weightlifting more popular in Finland than anyone could have predicted, long before the gym boom.

Nine weightlifters represented Finland in Munich, more than ever before or since. Despite great expectations, they did not win any medals.

The competition was over in all other classes except the super heavyweight, until the dramatic day of 5 September dawned. Many Finnish team members awoke to the sound of shots coming from a neighbouring house in the Olympic village. Someone had a gun, and was using it!

The Munich Games were the most tragic in Olympic history; the Palestinian terrorist group Black September struck. As a result of the attack on the Olympic village, seventeen people lost their lives: eleven members of the Israeli team, five attackers and one German police officer.

The games were immediately put on hold for 24 hours. Egypt, Israel, Algeria and the Philippines withdrew from the games straight away. Some individual Dutch and Norwegian athletes also made their own decisions to go home. They included the Dutch long-distance runner Jos Hermens, who had entered the 5,000 metres.

Lasse Virén had not heard anything unusual from his room. Luckily, he went the other way for his regular morning run that day! Otherwise he could have found himself in the middle of a terrorist attack.

As the whole situation slowly became clear, the leader of Team Finland, Pekka Kare, called all his athletes together. "Should we go home or not?" he asked. He recalls addressing his question to Lasse Virén. Virén had already won one Olympic gold in Munich, and Kare remembers him replying that he had come there to run.

They decided to continue competing. Pekka Kare, as overall leader of the Finnish team, took the news of the terrorist attack much harder than many other members. Ever since Bruno Nyberg's day, the Finnish Weightlifting Federation had had a good relationship with Israel, and Kare knew some of the victims. Weightlifter Zeev Friedman was placed

Pekka Kare spoke at the Foundation's fortieth anniversary celebration in the Finlandia Hall. (Paavo Nurmi Foundation)

twelfth in the series, and David Berger, another first-class weightlifter did not make the list of top-ranking athletes.

After one extra rest day, the games continued. Despite the tragic incident, the Finns were able to focus on their own performance in the last few days of the competition. Before the terrorist attack, Lasse Virén had won the 10,000 metres, and after it, he won the 5,000 metres. On the same day, Pekka Vasala sprinted to gold in the 1,500 metres, and Reima Virtanen struck silver in the boxing ring. To cap it all, wrestler Risto Björlin and archer Kyösti Laasonen achieved Olympic bronze medals.

The Finns had not managed to win any weightlifting medals at all in the first few days of the games. The last class in the competition was a new one; the super heavyweight. Two Finnish weightlifters were competing: Jouko Leppä weighed 144.80 kilos, and Kalevi

Lahdenranta 134.30 kilos. Leppä had the medal in his sights, but the East German Gerd Bonk lifted the same result as Jouko Leppä, but the German was 1.5 kilos lighter himself, so he got the Bronze Medal. Jouko Leppä's fourth place was the Finns' greatest weightlifting achievement in Munich.

Pekka Kare became managing director of the press Kvartto Oy, which was owned by the Finnish national betting agency, Veikkaus. He took over from Jukka Uunila in 1973. From the mid-1970s, he was also on the Finnish National Sports Council.

"I had my own law firm when I was elected managing director of Kvartto Oy. This was seen to be a problem; some said it could cause jealousy. I said, fine, I will stop running the law firm, and I sold it to an employee," Kare explained.

Pekka Kare had been active in local politics, and served on the municipal government on his home turf, in Siuntio. He was also a Centre Party candidate in the 1980 parliamentary election.

"After Bruno Nyberg, gymnastics teacher Pentti Anttila became the next chair of the Finnish Weightlifting Federation. Following his short term, I succeeded him. Kalle's Olympic Gold in 1968 was hugely significant in many respects. In Munich, Finland got twice as many points in weightlifting as we had achieved in the Mexico Olympics," Pekka Kare recalled.

Pentti Anttila had been the director of the Pajulahti sport academy for about ten years until the early sixties and returned to the same post in the 1970s.

"That was when politics got in the way. Relations between the Finnish Workers' Sports Federation (TUL) and the Weightlifting Federation had been difficult ever since Matti Ahde came on the scene. I agreed with Veli Karhu, the chair of the TUL weightlifting section, on cross-federation cooperation, but Matti Ahde took the matter to the federation's annual conference, politicised the question of cooperation between weightlifters, and no cooperation resulted. TUL knew its own strength then. Matti decided to show just how far that strength could go.

"Despite the tensions, I tried to stay true to Bruno's principle that we should work together on the national level to represent Finland."

The role of chair of the state sport council was arranged for Matti Ahde, an up-and-coming SDP member, in 1975. Simultaneously, the Centre Party's places were redistributed, and both the former chair J.E. Niemi and Pekka Kare lost their seats on the council.

In 1992, Kare founded a movement called "Suomalainen Ryhtiliike" ("Finnish posture movement"), which had the purpose of promoting rhythmic gymnastics with the use of sticks to all kinds of people. He worked with this type of gymnastics for 25 years. Sirpa Arvonen was a good working partner of his.

Pekka Kare's views on the establishment of the Paavo Nurmi Foundation were clear. "Paavo Nurmi was a runner, builder, patron and philanthropist. He wanted to find out why a person who has lived a relatively healthy lifestyle still gets ill with something like vascular disease, and how to help them – both himself, and others. This idea grew into the concept of the Foundation. Paavo was fully aware of the impact his own name would have in this regard.

"According to its constitution, the Foundation was established to benefit research into heart and vascular disease and public health in general. The idea was also to promote physical activity and sport. This is what he wanted, and this is what he got. On the board, I made sure we kept Paavo's underlying idea in mind," Pekka Kare said.

"But he didn't want to get into financing sport directly. Paavo said that sport is a bottomless pit; he didn't have enough money for it."

Arne Hovitie – bank manager

In the 1980s, Antero Raevuori wrote a biography of Paavo Nurmi, *Juoksijain kuningas* ("The King of the Runners"). He had great assistants who interviewed key individuals. One of these was Arne Hovitie, Paavo Nurmi's trusted bank manager, who was interviewed on 12 December 1984.

By then, he had lived in one of Paavo Nurmi's buildings on the island of Lauttasaari for three decades. He had arranged credit and long-term loans for Nurmi's construction business since 1946. This was what caused the urban legend that Paavo Nurmi got credit from the bank without security.

"It is no exaggeration to say that Paavo Nurmi lived 'against the clock' – just like he did on the race track. He had a very tight schedule. He started his day with a morning walk at seven, later going out around nine, and went for another walk between two and three in the afternoon," Hovitie said.

"Nurmi was an extremely frugal and precise man; he made sure that nothing ever went to waste. He also had no patience with laziness."

When he was starting out in business, Hovitie said, Paavo Nurmi did not trust people, that is, his partners, but this clearly changed as time went on. "The same construction workers kept working for him for years, because he treated them well, and paid them well, too," Hovitie said.

"Over the years, Nurmi and I talked about all sorts of things. He was especially interested in economic policy. He was very keen on individual liberty. Once, he said, 'I'd rather be a beggar in the West than a free man in the East.' He didn't accept the socialist system, but he really appreciated the American way of life. You could tell this from the fact that he very often accepted invitations to events in the USA.

"Nurmi wanted to hear all sorts of peoples' opinions. He 'consulted' a lot; for instance, he called me at nine in the morning almost every single workday. He didn't see himself as someone who knows everything; he knew how to appreciate other people's expertise in different fields. So he didn't make a lot of mistakes."

In the early 1950s, Nurmi built some Arava buildings on the island of Lauttasaari. Arava loans were granted for rental and right-of-occupancy housing communities and private individuals for the construction, acquisition and renovation of apartments. "When the land prices rose, he invested serious money in residential property," Hovitie said.

It was rare for Nurmi to get close enough to people to invite them to his summer cottage. Arne Hovitie was one of this inner circle.

"We remained close right up until his death, I could even say that we were very close. Nurmi is often described as 'difficult'. But I disagree. He was always striving for perfection; he was precise, demanding of himself and others, but he was not 'difficult'. He had friends, such as former Olympic Medalists Armas Toivonen, Ville Ritola and Hannes Kolehmainen, with whom he thoroughly enjoyed putting the world to rights."

These particular friends had also been long-distance runners, and competed against Paavo in their day.

Hovitie also mentions the Colombia group, the 'hatted gentlemen' who met at the Colombia Café in central Helsinki around nine or ten o'clock every morning. Paavo Nurmi was a regular visitor there.

"Nurmi valued straight talkers. Ville Ritola was certainly one of them. The two men had had a rather distant relationship – they had competed against each other, after all – but they grew closer later, when Ritola returned to Finland from the USA. My own impression is that Nurmi was not nearly as talented a runner as Ritola; we can only guess at what Ritola could have achieved with the training Nurmi got."

Armas Toivonen died on 12 September, and just three weeks later, following a cold caught on his autumn walk, Paavo Nurmi followed him; he died on 2 October 1973.

Paavo Nurmi had two caregivers in his last years, Lahja Vainikka and the widow Irma Rinne. Rinne remembered Lahja warmly in an interview on 29 March 1985. "She was a wonderful person, perhaps a little melancholy, as she was very affected by her own illness. She did everything that she could to make Nurmi comfortable." Lahja Vainikka died of cancer in 1975.

For the first year or so, Rinne took Paavo Nurmi out for walks every weekend. During the last six months of the great runner's life, Irma Rinne was looking after him practically on a daily basis.

"Of course it was a great responsibility to care for Paavo Nurmi, and for the first week, I was really nervous, in fact I was scared. But then Matti and Paavo said that I shouldn't be frightened, I should feel at home, so I calmed down and wasn't really nervous any more," Irma Rinne said.

"Paavo Nurmi was an honest person who couldn't bear twisting the truth or lies. He had iron self-discipline – you could even say he 'beat himself up'. He believed that really pushing oneself was part of life. He went for a walk twice a day, every single day, rain or shine. He was as disciplined then as in his days as a top-level athlete.

"Everything in his life was ordinary – he ate regular Finnish home cooking, nothing fancy. He never said a bad word about anyone, but sometimes he expressed his regret that life in general was going from bad to worse. As he put it, 'the humble, quiet life is being replaced by ostentatiousness and vulgarity.' Nurmi certainly did not like what he saw on his walks around town."

2.

Establishing the Foundation, 1968

The inaugural meeting of the Paavo Nurmi Foundation was held at the Deaconess Institute in Helsinki on 11 March 1968. Besides the founder, Paavo Nurmi himself, the others present were Pentti Halonen and Lauri Kalaja, Arne Hovitie and Pekka Kare. The Foundation was registered very quickly, on 3 April 1968.

Paavo Nurmi opened the first meeting on 11 March. The 'judge', as Paavo Nurmi called Pekka Kare, was chosen as both chair and secretary of the meeting.

The process had been set in motion on 15 February 1968, the day Paavo's ex-wife died in Meilahti Hospital. Paavo Nurmi, who was then lying in another hospital bed in the Helsinki Deaconess Institute, had signed the document requesting permission to establish the Paavo Nurmi Foundation. In the foundation document, Paavo Nurmi wrote, "to promote heart and vascular research and public health in

our country, and to support work being done in these fields, I, the undersigned, buildings manager Paavo Nurmi, in the City of Helsinki, have decided to establish a foundation to realize these aims in the manner described in this deed of foundation, called the Paavo Nurmi Foundation."

The minutes of the inaugural meeting recorded that the Ministry of Justice had approved the Foundation and confirmed its constitution on 29 February, a leap day.

As founder, Paavo Nurmi naturally became the chair. He invited Halonen, Kalaja, Hovitie and Kare to serve on the board. Halonen was also appointed vice chair. The chosen auditors were Veikko Hakala, an auditor approved by the Finnish Central Chamber of Commerce, and Lauri Suomela, Licentiate of Laws. Their deputies were the economist Unto Korvenoja and Armas Toivonen, Paavo Nurmi's former competitor on the track and current buildings manager.

Paavo Nurmi himself took on the role of treasurer, and the buildings manager Urho Alanko was nominated to assist him. Pekka Kare was given responsibility for legal matters. Kare and Paavo Nurmi were also appointed to transfer the shares in the two buildings donated to provide capital for the Foundation, As Oy Saarentientalo and As Oy Linnankoskenkatu 13. Nurmi also donated one million marks in working capital to the Foundation during its first year of operation. Some of the money was required for running costs, while the rest was invested in a high-interest bank account with Pohjoismaiden Yhdyspankki.

The plan was to distribute the first grants on Paavo Nurmi's birthday, 13 June 1968. It seems they ran out of time, however, as the award date was changed to August. Two days earlier, a press conference was held to announce the establishment and activity of the Foundation. Professors Halonen and Kalaja judged the awards.

A total of 190,000 marks was distributed (€288,251 in 2016 prices). The first people to receive grants were Matti Arstila, MD, Samuli Auvinen, MD, Martti Hakumäki, MD, Vesa Manninen, Bachelor

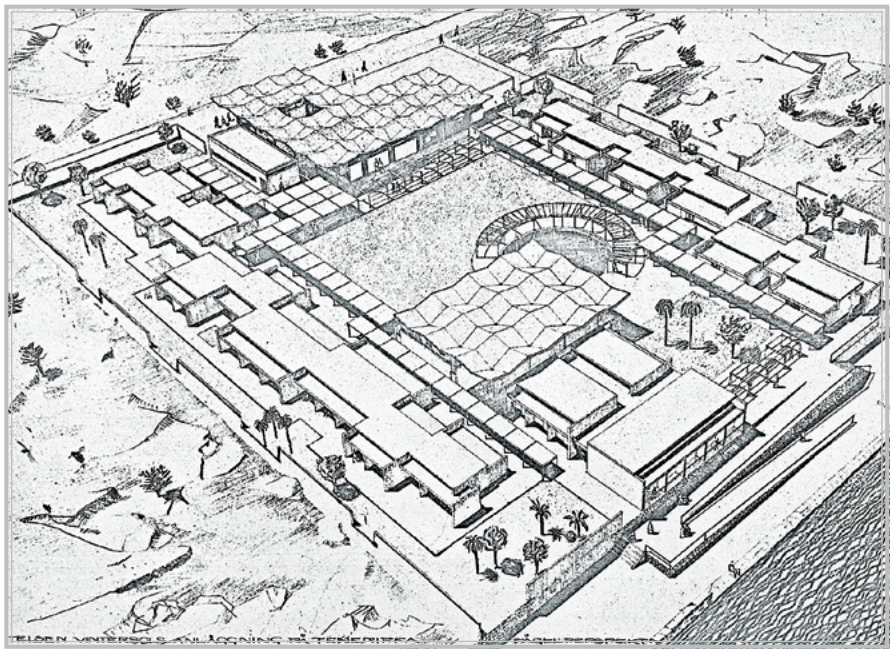
of Medicine, Juhani Peräsalo, Bachelor of Medicine, Heikki Riekkinen, MD, Tapani Ruutu, MD, Anja Forssén, MD, Antti Viljanen, MD, PhD, Pirkko Suoninen, MD, and Seppo Lindy, Bachelor of Medicine.

The Tenerife Project

At the end of the Foundation's first calendar year, on 11 December, it was decided to look into setting up a rehabilitation centre on Tenerife, for both convalescents and athletes. The decision was made to apply to the Bank of Finland for a loan of 60,000 marks to buy three hectares of land on Tenerife, two kilometres west of Playa de los Cristianos, from Mr Sergio Conzales Machado. Paavo Nurmi was willing to match this sum from his own reserves. At the same time, the Foundation decided to find out how another local rehabilitation centre worked. Vintersol, owned by the Swedish MS Society (Svenska MS-föreningarnas riksförbund), was right next door.

It is not clear whether Paavo Nurmi was interested in buying Vintersol in the future, too. At any rate, it was benchmarked and it looked like the bank would give it the green light. But later, they changed their mind.

Paavo Nurmi personally attended the negotiations on Tenerife at the beginning of 1969. The health and fitness institute for Finns would have cost 2.5 million marks. On top of that, Arne Hovitie stated in an interview in December 1984 that the institute would have cost two million marks a year to run. At that time, however, the Bank of Finland was wary of allowing such large sums of money to be transferred abroad. Because the Bank of Finland put the brakes on the project, it fell through.



At the end of the 1960s, Paavo Nurmi planned to build or buy a rehabilitation centre for the Foundation on Tenerife. He was inspired by the Swedish- owned centre, Vintersol. (Paavo Nurmi's collection)

Antti Louhija, symposium organizer

It was decided to pay an assistant to help Professor Halonen organize the seminars, Antti Louhija, MD, PhD. A briefing about the symposium was organized in the SVUL restaurant in September 1969. The first Paavo Nurmi Symposium was held in Haikko Manor, entitled "Thrombosis and Coronary Heart Disease".

At its twenty-fifth anniversary celebrations, Antti Louhija recalled the Paavo Nurmi Foundation's early days. "Without a doubt, Paavo Nurmi is the greatest athlete ever. "There are good reasons to think he might have been the greatest athlete in the world... He was independent, decisive in pursuing his goals, you could even say ruthless. These very characteristics served him well in later life, in the construction in-

Paavo Nurmi's rehabilitation centre would have welcomed convalescents and some top athletes in need of some winter sun.

(Paavo Nurmi's collection)

dustry and in business. Master builders of his day have said that he took no nonsense from anyone. This was the man behind our Foundation, which is now a quarter century old. I remember when I was secretary to the Paavo Nurmi Symposium 24 years ago – I was astonished by how well-known Paavo Nurmi was; he did not really need any introduction to the top heart disease researchers who had gathered there from all over the world. Some of the Americans had seen him running on the local indoor track; one recalled sitting on his father's shoulders, to get a better view of 'the Flying Finn'. When Paavo Nurmi himself came to open the symposium, it was an unforgettable experience for everyone present to see 'the world's greatest athlete of all time,' as some of them spontaneously put it. The Finns weren't the only ones who thought Paavo Nurmi was a great man!"

Paavo Nurmi holidayed in Spain at the end of the 1960s, for instance in Santa Catalina (Paavo Nurmi's collection)

In a phone call on 4 November 2017, Louhija looked back on the 1969 symposium, where he interpreted for Paavo Nurmi at Haikko Manor. Nurmi gave the welcome speech and joined them for the closing dinner.

Surprisingly, his opening remarks were a little long, so Antti Louhija summarized them significantly in his English interpretation. Later on, well-known American cardiologist Meyer Friedman, who had linked

cardiovascular disease to aggressive "type A" personality, and was now in the audience, came to Louhija and said half-jokingly that he would ask Louhija to produce a new version of his comprehensive cardiology textbook, because the young doctor had excelled himself in the art of summarizing!

The first symposium cost the Foundation 54,174 marks, most of which went on participants' travel expenses. Two hundred copies of the symposium publication, *Thrombosis and Coronary Heart Disease* (1970) were distributed to Finnish central hospitals and potentially interested experts in the field. This first medical symposium was so successful that it shaped the course of future symposia.

In the initial stages, the Foundation was feeling the pinch financially, so the board decided not to award grants in 1969, although they received 24 applications. The following year, they distributed 152,500 marks, with the largest award going to Antti Louhija, MD, PhD.

New members joined the board. They met in the SVUL building on Topeliuksenkatu, and elected Matti Nurmi onto the board. At the same meeting on 21 April 1970, the board also approved Hovitie's proposal to invest 150,000 marks with the PYP Bank. Paavo Nurmi had actively invested in the stock market in his day, but now it was time to let the professionals do it.

The 1971 budget recorded interest income of 10,000 marks and 15,000 marks from two properties, As Oy Hiekkaharjuntie 6 and As Oy Riddarborg, 60,000 marks from the town of Lappeenranta and 10,000 marks from deposits.

The Foundation's finances stabilized quickly, and grants were awarded to heart and vascular researchers almost every year. Initially, symposia were held every other year, and a little less frequently in the 2000s. The Foundation made the headlines when it donated physician-staffed ambulances, first to the City of Helsinki and a few years later to the City of Kuopio.

3.

Lauri Kalaja – Mannerheim's personal physician

Professor Lauri Kalaja (1904–1976) served as Medical Director of the Helsinki Deaconess Institute from 1955. He was Adjunct Professor of Internal Medicine at the University of Helsinki from 1941 to 1946 and then Professor of Internal Medicine at the University of Turku from 1946 to 1949. During the Continuation War, he became personal physician to Field Marshal Mannerheim, the commander-in-chief of Finland's defence forces.

When he took presidential office at the end of the war, Mannerheim had health problems due to his advanced age and the pressures of his role. In the autumn of 1945, Kalaja prescribed the president with a rest cure to recover from his stress and stomach ulcers. Mannerheim travelled to Praia de Rocha in Portugal with his personal physician,

Kalaja, and his adjutant, Colonel Grönvall. The president lost weight and returned home on 3 January 1946. His stomach ulcer was in a position that made it difficult to operate. So his personal physician recommended that Mannerheim resign. Prime Minister J. K. Paasikivi, who had taken on the role of head of state during the president's illness, also hoped that he would step down. At the age of 78, Mannerheim resigned from presidential office at the beginning of March 1946.

The young doctor gains Paavo Nurmi's trust

Tauno Taajamaa tells the story of how Kalaja became Mannerheim's personal physician in his book *Mannerheim, Lempeäkatseinen legenda* ("Mannerheim, Gentle Giant", 1996). Professor Gösta Becker, Mannerheim's personal physician, was out of town, and Kalaja was asked to look after his patients. The Continuation War was just starting, but Mannerheim had influenza and a high fever. Kalaja visited his patient daily in his house near the central Helsinki park, Kaivopuisto. When Mannerheim recovered, he travelled to the Finnish army headquarters in Mikkeli. Kalaja was assigned to head the field hospital, but he soon received the order to report to Mannerheim at headquarters. His actual personal physician, Becker, had prescribed Mannerheim bed rest, but he wanted to have a second opinion from the young doctor. Becker and Kalaja examined Mannerheim together, and then withdrew to consult. Becker gave Mannerheim their joint opinion.

Kalaja was preparing to return to the field hospital the next morning, when, late that evening, he was called to Mannerheim's bedside. The Field Marshal wanted to get Kalaja on his own, to hear what he thought. He wanted to travel to Northern Finland to meet the German Colonel General von Falkenhorst. If the journey was not life-threatening, Mannerheim said that he would go. Kalaja gave him permission to travel, and received the position of Mannerheim's personal physician. When Mannerheim had to make a medical decision, Kalaja had to

present his case very carefully, to ensure that the patient reached the same conclusions as the doctor. So Kalaja took long walks through the streets of Mikkeli pondering how he could present a particular issue to Mannerheim while he was drinking his regular evening grog.

For instance, he turned to President Risto Ryti for help in the spring of 1943, when Mannerheim had double pneumonia and really needed sick leave. The President ordered Mannerheim to convalesce for a month in Switzerland.

On the journey there, Field Marshal Mannerheim was really rather weak. He was also somewhat averse to flying. So Kalaja kept him well supplied with brandy for the entire first leg of the trip. In the second volume of his memoirs, published in English in 1953, Mannerheim describes how his health deteriorated during the Continuation War. "My health during the last year had not been very good, and it became worse in the spring of 1943, when I, for the second time that year, had double pneumonia. Despite the best of treatment, my health did not improve, and as it appeared to me that we would be approaching times which would place great demands on my strength, I had to give way to the insistence of my doctor, Lauri Kalaja, that I seek a milder climate." The destination was Switzerland.

Mannerheim's aeroplane made a stopover in Berlin, during which the Marshal also recalled meeting the Finnish Ambassador, Professor

T. M. Kivimäki. Veijo Meri gives us a much livelier description of their encounter in his 1988 book on Mannerheim for WSOY's 'Great Finns' series. General Walden had called Talvela, who was acting as liaison officer in Berlin, and explained that he was taking his wife, "Mrs Walden", to Switzerland for treatment. Talvela understood that this meant Mannerheim, and brought his good friend, the German Major von Albedyll, to the airport. Von Albedyll was married to the Swedish Countess von Essen, so he also spoke Swedish. Talvela drove his friend to the little military airfield in Rangsdorff. When Talvela told Mannerheim that von Albedyll was coming, too, Mannerheim simply exploded. "Damn it, I said that I don't want to meet anyone here, but you've

Field Marshal G. E. Mannerheim (far right) sitting on the terrace of the sauna at his hunting lodge with Major General Erkki Raappana (second from the right), Medical Major Lauri Kalaja, Lieutenant Colonel Ragnar Grönvall, Lieutenant Mikko Rossi, Second Lieutenant Erik Blåfield and Major Eino Lassila. (Pauli Jänis / Jänis Photographer's Studio Collection / National Board of Antiquities)

still brought this von Albedyll along!" When he had calmed down, he disembarked and greeted von Albedyll appropriately. Mannerheim's personal physician Lauri Kalaja saw that Talvela was close to despair. He whispered that there was no need to take it personally. Veijo Meri has an explanation for this dramatic episode. "The Marshal was simply drunk. He really was. Kalaja had been topping up his brandy glass for the whole flight, because he was in such dreadful shape."

Talvela wanted to speak to Mannerheim in private. He managed to do this in a building on the edge of the airfield, while von Albedyll entertained Kalaja and the commanding officer, Lieutenant Colonel Grönvall, into the adjacent building.

They flew the next leg of the journey in an old passenger plane belonging to Aero (the Finnish airline at the time), but the one of the two engines cut out and they were forced to land in Stuttgart. Grönvall and Kalaja joined the airfield commander to assess the situation. Ragnar Grönvall suggested that the commander get in touch with Göring's headquarters. Soon they had the news that a German aeroplane was on the way. Mannerheim snapped, "If you gentlemen want to travel on that plane, that's your business, but I don't want to owe the Germans a debt of gratitude and I'll make my own way to Switzerland."

It is worth remembering that Urho Kekkonen, writing under the pseudonym Pekka Peitsi, had been speculating about a separate peace agreement in February 1943 in the leading weekly *Suomen Kuvalehti*.

Mannerheim said angrily he would like a taxi and would pay for it himself. Now, Grönvall and Kalaja decided to resort to a disloyal deed. Another plane was about to take off for Zurich, but it was fully booked. Following a conversation behind the Marshal's back, the commander expelled three passengers from the plane, to be replaced by Kalaja, Gröndahl and "Marheim", as he called himself for the duration of his Swiss vacation. Mannerheim paid for all three tickets.

Kalaja's medical family

Professor Lauri Ilmari Kalaja, MD, PhD, was born into a medical family. His father was Arvo Aleksanteri Kalaja, MD. His younger brother, Tauno Kalaja, MD, was chief physician in Joensuu. His older brother, Eero Kalaja, was the black sheep of the family, since he qualified as an engineer. Professor Kalaja's obituary appeared in the leading Finnish daily, *Helsingin Sanomat*, on 7 March 1976. It told readers that Kalaja had been medical director of the department of internal medicine at the Deaconess Institute since 1950, and chief physician of the whole hospital from 1955. He was an influential man: board member of the

Nordic Society of Internal Medicine, chair of the Finnish Society of Internal Medicine, the Finnish Medical Society Duodecim, and the Finnish Endocrine Society, and member of the boards of both the Cancer Foundation Finland and Cancer Society of Finland.

Kalaja enjoyed fishing and he was elected onto the board of the Finnish Angling Federation immediately after the war in 1945. Kalaja shared this hobby with the next presidential personal physician, Professor Pentti Halonen.

4.

Pentti I. Halonen – Kekkonen's personal physician

Professor Pentti Ilmari Halonen (1914–1983) was the son of master builder Erkki Halonen and Henni Rytkönen. Henni's sisters, Ida and Maria Rytkönen, set up the Salus Hospital in Helsinki. They had started on Vuorikatu, but then Maria bought a plot near the city-centre park, Kaivopuisto, with funding from her brother Alpi and a bank loan from Maatalouspankki. Maria called her sister Kerttu in Kuopio. "I've bought the land, start sketching!"

Architect Kerttu Rytkönen designed the hospital. She was far from thrilled by the location, right across the street from the new German Embassy. The hospital was opened in early 1929, and was a private institution until 1944. Doctors saw patients outside their paid working hours. Professor Lauri Autio, MD, PhD, has written a colourful and

moving history of the hospital's early years, published in 1990, entitled *Salus: Wihurin tutkimuslaitos ja suomalaisen sydäntutkimuksen alkuvaiheet* ("Salus; The Early years of the Wihuri Research Institute and Finnish Heart Research"). Jenny and Antti Wihuri funded the Wihuri Research Institute, which was founded on the island of Kulosaari (now part of Helsinki) in spring 1944. In early 1945, the Rytkönen siblings donated the Salus Hospital to the Wihuri Foundation. Thus, the Foundation now owned both the Wihuri Research Institute which was located in Kulosaari and the Salus Hospital located in Kaivopuisto, which was affiliated to the Research Institute, and, accordingly, renamed the Wihuri Research Institute Salus Hospital. This created a challenge for the first Director of Wihuri Research Institute (from 1944 to 1947), Professor Alvar Wilska, MD, PhD. In addition to his duties at the Institute of Physiology of the University of Helsinki, Wilska now had to divide his time between basic research in Kulosaari and his clinical research in Kaivopuisto, where he also served as the first chief physician of the hospital. As all this turned out to be overwhelming, this multitalented genius regrettably resigned from all his duties at the Wihuri Foundation.

Directorship of the Salus Hospital

Pentti Halonen received his MD, PhD degree in 1941. The Wihuri Research Institute offered him a physician's job at the Salus Hospital in 1945, and he became its chief physician in 1947 after Alvar Wilska. In 1953, he was appointed Professor of Internal Medicine at the University of Helsinki. During his years at the Salus Hospital, Vesa Manninen was his right-hand man. Manninen's Finnish National Biography entry on Halonen describes him as the founder of Finnish cardiology. In his obituary on 29 December 1983 in *Helsingin Sanomat*, Halonen is presented as Finland's leading heart specialist, a pioneer in both heart research and work for heart disease organizations.

He is remembered especially for his role as personal physician to President Urho Kekkonen. Halonen was a keen angler, so naturally he joined Kekkonen on his fishing trips. Previously, he had also treated President J. K. Paasikivi.

Professor Halonen was a member of the Academy of Science and Letters from 1951 and a member or honorary member of several international medical societies. He chaired both the Finnish Heart Association and the Finnish Foundation for Cardiovascular Research. He was chair of the board of Helsinki University Central Hospital (HUCH), and medical director of the hospital from 1970 to 1974. Halonen continued in post as Professor of Internal Medicine until 1981, and many of his students at Helsinki University remember that he was a heavy smoker. He even lectured with a lit cigarette on his lips, and had to light the next one before the previous one went out.

In 1932, Halonen graduated from high school in Kuopio, and he kept his strong regional dialect for the rest of his life, which created a comfortable atmosphere around him, wherever he was. He received his Bachelor of Medicine degree in 1935, and, as stated above, his MD, PhD degree in 1941. He started working as Chief Physician of Internal Medicine Clinic I at HUCH in 1961, but during the war years, he was a teaching assistant in the Department of Anatomy at the University of Helsinki. Most likely, he met Kekkonen during the difficult years of evacuee resettlement, since he worked for the Central Evacuation Office, as a doctor from 1941 to 1943 and its medical office manager in 1943. Halonen was influential in many forums. He was on the boards of two pharmaceutical factories, Orion and Regulus Oy, on the executive council of the Orion group, and chair of the scientific advisory board for the Orion factory. He was also a founding member of the Finnish Cardiac Society.

President Urho Kekkonen and his personal physician Pentti Halonen on a trip to Iceland in 1978. (UKA)

The president's memory lapses as early as 1972

In his book *Liennytyksen akanvirrassa* ("The Eddies of Détente"), acclaimed historian Juhani Suomi describes how, following a mild heart attack, President Kekkonen used to visit Professor Pentti Halonen at HUCH for a thorough check-up a couple of times a year – he did not seem to find this a burden. Kekkonen experienced his first memory lapse in late autumn 1972, and contacted Halonen. He realized he had forgotten about things like the recent death of a leading entrepreneur, Juuso Walden. Even at this early stage, Kekkonen asked Halonen whether his condition would mean that he had to resign as president. "There's no reason to, but you need to lower your stress levels," his physician replied.

Professor Pentti Halonen was a keen angler. He joined President Urho Kekkonen on a number of fishing trips. This picture was taken in Iceland in 1978. (UKA)

A few weeks later, Kekkonen ruled out running for president again. This refusal is generally interpreted as political game playing.

In May 1973, Kekkonen had another check-up at HUCH. This time, Halonen was satisfied. "It's nice to report such good results."

Just three days later, Kekkonen stopped suddenly during his morning jog on the island of Seurasaari. He stood stock still for a few minutes. His bodyguard grabbed the dog's leash and checked his pulse. Later on, Kekkonen had no memory of this at all. Juhani Suomi describes the president's symptoms of ageing in a dignified way, citing his own diary entry. "I was worried, because I thought my old age wasn't coming for a long time yet. I really never felt any older than I had done twenty years ago. This is all very surprising, frankly appalling, to be honest. Should I resign immediately or wait for a politically opportune moment? Halonen can decide."

This time, Halonen did not rely on his own diagnosis, but consulted with Professor Erkki Kivalo, Chief Physician of the Neurology Clinic at HUCH. In mid-June the professors came to the presidential residence at Tamminiemi to give their opinion. The neurologist largely took the same view as Halonen in his previous assessment. "All the results are normal. For example, the brain scan looks just like the one Professor Pitkänen took eight years ago."The three memory lapses were explained by the stress resulting from a vasospasm (the blood vessels tighten and go into spasm, so blood does not flow normally). Memory loss. There were 80 cases in the literature. It was recommended to stop running, even walking fast, and not to stay up late or strain oneself physically. Juhani Suomi shows that Kekkonen was happy. "I was pleased with the results, like the professors. I said I was thinking about stepping down. Halonen and Kivalo: 'no reason to.' Get enough sleep and rest during the day. Keep taking the same medication. Fishing trips do you good."

Professor Pentti Halonen attended his last Paavo Nurmi Foundation board meeting on 8 September 1983. It was held in his office at the Salus Hospital, in Helsinki. The chair of the board, Matti Nurmi, opened the meeting, and asked Halonen to chair it. That October, he was still able to participate in the Paavo Nurmi Symposium entitled "Management of Angina Pectoris". The symposium was held in Haikko Manor from 6–8 October. The cardiology pioneer Pentti Halonen died of lung cancer on 27 November 1983.

5.

A heart ambulance for Helsinki

Paavo Nurmi's proposal to acquire a heart ambulance was noted in the minutes of the Foundation board meeting, held in the SVUL building on 14 April 1971. The board also decided to find out how the City of Helsinki might feel about funding the running and maintenance costs, and Pekka Kare and Arne Hovitie were chosen to follow this up. The physician-staffed ambulance made the national news. ("Paavo Nurmi Foundation acquires heart ambulance", *Helsingin Sanomat* 23 April 1971.)

In the summer of 1971, the Finnish Heart Association ran a heart ambulance trial in Helsinki. The Paavo Nurmi Foundation, represented by Arne Hovitie and Pekka Kare, consulted the Finnish Heart Association and City of Helsinki about the project.

Professor Lauri Kalaja proposed organizing a special heart ambulance symposium the following year.

Instead, the second symposium, held in Haikko Manor on 9–11 September 1971, discussed "Early Diagnosis of Coronary Heart Disease". Since Antti Louhija had organized the first symposium so well, he was chosen to act as secretary of this one, too.

The Belfast model

The English professor Shillingford attended the second symposium; he knew about how heart ambulances worked in his home country. At the time, the United Kingdom had seven special ambulances. The first heart ambulance in the world had gone operational in Belfast six years earlier, but the Troubles in Northern Ireland hindered its work.

Shillingford explained that the costs of special ambulances often caused difficulties. "The problem is the costs. The annual expenditure is approximately 200,000 marks, and the capital expenditure would be 2.5 million marks. It may be that we could achieve a better result by investing the money in something like road safety."

In its meeting on 23 May 1972, the board of the Paavo Nurmi Foundation decided to commission a physician-staffed ambulance to donate to the City of Helsinki. The board required that the city use the ambulance effectively and take on all the maintenance and running costs. It was decided to order the chassis from Veho Oy Ab, who represent Mercedes-Bentz in Finland, and the body of the vehicle from K Nummela Oy. The total cost was 150,000 marks. On 22 September 1972, Helsinki City Council announced that the Paavo Nurmi Foundation had donated the ownership and possession of a physician-staffed ambulance to the city.

The Finnish Heart Foundation trialled the physician-staffed ambulance first in 1971. Initially the nurses were volunteers, including Katja Äijälä and Maija Anttila. The doctors were apparently paid through HUCH. The emergency call service was organized at the nursing insti-

tute residences. Their headquarters was the "Hilton", Meilahti Hospital, built in 1966.

Äijälä and Anttila got two toolboxes from the ironmongers, and started collecting medical equipment for the ambulance. "We put the instruments, needles and syringes in them. We could do intubation too, and we planned the initial first aid," Äijälä and Anttila recalled in an interview on 9 November 2017.

The first two nurses recalled that the usual ambulance driver was the legendary war hero Lauri Törni's backup man during the war, Holger Pitkänen. He was an organizer and got things going.

Holger Pitkänen was a fast driver. On one trip, the doctor fell off her seat when Pitkänen took a curve at high speed, but he just laughed. "That was the last time I went with him," the nettled anaesthetist said.

Nurse Äijälä was there when the physician-staffed ambulance was presented to Paavo Nurmi and President Urho Kekkonen.

"I remember when I had to show Paavo Nurmi the physician-staffed ambulance. He was already an old man then, sick and cranky. He walked with difficulty, using a stick. He was not particularly interested. Paavo was pale. As I recall, his son was with him," Katja Äijälä said.

"It was completely different when Kekkonen jumped on board the ambulance at [the presidential residence] Tamminiemi. Holger showed Kekkonen the ambulance, and he didn't want to get out. The adjutant came to say, 'Mr President, our next appointment should have started.' Good Lord, how they scrubbed and polished that car. And they drove that ambulance right into the forecourt of Tamminiemi. Kekkonen was fascinated. Greyhounds circled the car. And Adjutant Wächter was right beside it," Katja Äijälä recalled.

Markku Murtomaa's detailed report

Katja Äijälä and Maija Anttila stressed that the whole first aid system was created by Markku Murtomaa, MD, a key figure in the physician-staffed ambulance project. In the early 1970s, Murtomaa set up the Intensive Emergency Response Group with Holger Pitkänen and Kari Aspi. We have Markku Murtomaa's activity report of the physician-staffed ambulance for 16 December 1972 to 15 June 1973. During that period, the ambulance was called out 764 times to treat 770 patients. Of these, 436 were driven in the ambulance, but in some (130) cases, another vehicle was used. In 85 cases the patient was dead before the ambulance arrived. They still attempted to resuscitate 53 of these patients. The false alarm rate was fifteen percent, or 117 cases.

Paavo Nurmi is said to have been satisfied with these concrete results. Despite multiple difficulties, his donation paved the way for physician-staffed ambulance operations in Finland.

6.

An ICU ambulance for Kuopio

In the Paavo Nurmi Foundation archive, there is a letter of thanks from the Mayor of Kuopio, Olavi J. Oksa, dated 22 August 1979. Oksa thanked the Foundation for its gift of an ICU ambulance named after President Urho Kekkonen on 30 July. The donation was arranged with the City of Kuopio, Veho Oy Ab and the National Board of Health. Kuopio City Council executive had approved the ambulance on 18 June.

The idea had arisen that May, during President Urho Kekkonen's visit to the Federal Republic of Germany. The Foundation was represented on this visit by the chair and vice chair, Matti Nurmi and Vesa Manninen. On 10 May 1979, Daimler-Benz AG donated an ICU ambulance to the Paavo Nurmi Foundation, and it came to be known by the president's initials, UKK.

Medical Officer Viljo Rissanen wrote to Kuopio City Council on 6 July 1979: "The possibility of getting an ICU ambulance for Kuopio

was discussed by the senior managers of Kuopio University Hospital. We unanimously agreed that the proposal is extremely beneficial for the health care system in Kuopio; it will significantly improve treatment options for critical heart and accident patients in the surrounding district. Kuopio University Hospital could also use the ICU ambulance for teaching purposes, especially for medical and nursing students and the hospital's own staff, mainly in emergency department staff meetings. Naturally, the ambulance is also particularly well suited to training emergency medical technicians."

Juhani Koskinen, Deputy Mayor of Kuopio, the mayor's third secretary, Olavi Jyräsalo, and the Medical Officer of Kuopio University Central Hospital (KUCH), Viljo Rissanen, submitted their report on the use of the ICU ambulance to the Foundation on 28 November 1979. The report stated that the Paavo Nurmi Foundation's gift to the City of Kuopio of an ambulance suitably equipped for critical emergency response was received on 9 August 1979.

Operation plan completed in autumn 1979

A working group of city and hospital representatives was established to draw up an operation plan for the donated ambulance. On 11 September, the plan was completed; it was approved first by Kuopio City Council executive board on 24 September, and again by KUCH on 15 October.

The ICU ambulance was to be deployed for the following tasks: 1) emergency response to acute cases in the vicinity when this level of ambulance transport was deemed necessary; typical cases include heart attack patients and serious accidents; 2) medically monitored transfer of seriously ill or injured patients from other institutions, regional hospitals or medical centres to KUCH; 3) contributing to the regional catastrophe response system; 4) training various staff groups in ambulance transport and treatment.

The ICU ambulance needed a driver and assistant from Kuopio Fire Department, a nurse and a doctor from KUCH. This ambulance staff team was to be on call eight hours a day at the KUCH Emergency Department. At other times, the vehicle was to be on call at the fire department for use as a regular ambulance.

The City of Kuopio had to create two new firefighter posts to ensure that the ambulance could be deployed elsewhere, too. The new firefighters started work at the beginning of December. In turn, KUCH created new posts for one nurse on 1 January 1980 and for two more nurses on 1 July 1980. The City of Kuopio requested a transfer of funds from the Ministry of Social Affairs and Health to cover the ambulance running costs.

From the beginning of August, the ambulance was integrated into Kuopio's normal emergency services. The medical equipment for the ambulance was adjusted to suit the treatment methods used at KUCH and the hospital's emergency response and intensive care systems were adjusted to facilitate using the ambulance.

The municipal and KUCH staff were trained in how to use the ambulance. Besides emergency response, from December 1979 the ambulance was also performing the other three tasks for which it was intended: transferring seriously ill patients, catastrophe response, and staff training.

Based on Mercedes Benz L 508 D

The Binz ICU ambulance was based on a Mercedes-Benz L 508 D model with a wheelbase of 2950 mm and an internal height of 1900 mm. The interior bodywork and fittings were made by Binz GmbH & Co. in Lorch, West Germany.

It had a wall with two sliding windows between the cab and patient compartment, which had laminate walls, linoleum flooring, and a separate additional heater. The centrepiece was the Binz multi- adjustable stretcher platform, which could be adjusted, tilted, raised, or lowered.

The ambulance had a Siemens Sirecard-P battery-operated portable cardioscope and defibrillator unit, which was used to detect electrical signals from the heart and to restore a normal heartbeat by administering an electric pulse or shock. To record the electrical activity of the heart, the ambulance was equipped with a Siemens Cardiostat 701 model single-channel ECG. It also had a ten-kilo oxygen tank with cylinder valves and an integrated pressure regulator, and a suction device to clear mucus, blood and vomit from the patient's airways.

A CPR Annie mannequin for Turku

The physician-staffed ambulances had a special place in the heart of the Paavo Nurmi Foundation. In 2000 it approved a one-off grant of 25,000 marks to fund a CPR Annie mannequin for the Turku Regional Physician-Staffed Ambulance Support Association, on the condition that the Foundation present the donation to the association.

7.

Paavo Nurmi's last decision – a dialysis machine

Finnish public TV (YLE2) aired a report on kidney patients on its current affairs programme in the spring of 1973, stating that every year, three hundred people died needlessly. Journalist Ullamaija Kivikuru, later professor of Communications, raised the issue of injustice facing kidney patients again, in a critical report for *Helsingin Sanomat* on 11 April 1973.

On 29 May, the Foundation board approved Paavo Nurmi's proposal to issue the following grants: 1) To the Finnish Kidney Association (as it was then called) for a dialysis machine and the requisite additional equipment (the final award was 39,010 marks) on condition that the device be used efficiently. 2) To Adjunct Professor Lauri Virkkula's research group, 10,000 marks for research into "using surgical procedures to create collateral blood circulation".

In spring 1973, Paavo Nurmi focused on the low level of care kidney patients were receiving and his Foundation donated funds for a dialysis machine. The photograph shows the dialysis station run by the Finnish Kidney Association on Snellmaninkatu. (Finnish Kidney and Liver Association)

The history of the Finnish Kidney Association tells us how difficult it was to treat kidney patients in the early 1970s. There were not enough dialysis units, so the national and local kidney associations raised funds for dialysis machines. The Lahti and Helsinki associations founded their own outpatient dialysis stations in 1971 and 1972, respectively.

This was an expensive project, and the board members of the Helsinki association were personally liable for the costs incurred. Their outpatient dialysis station on Snellmaninkatu was linked to Internal Medicine Clinic IV on Unioninkatu; the association was responsible for practical arrangements and paying the staff, but the chief physician of the clinic was responsible for medical management. In 1979, the dialysis station was incorporated into HUCH.

The board meeting of the Paavo Nurmi Foundation which approved the dialysis machine project was Paavo Nurmi's last. The annual report of the Foundation for 1973 opens with the announcement that, "during its sixth year of operation, the Paavo Nurmi Foundation received sad news. The founder and chair, Paavo Nurmi, departed on 2 October 1973."

His funeral was held in the Old Church in Helsinki on 11 October 1973. Bishop Osmo Alaja and Minister of Education Marjatta Väänänen presided, and President Urho Kekkonen attended.

Official condolences with flowers were sent by:

The President of the Republic of Finland
Finnish Government
Paavo Nurmi Foundation
Turun Urheiluliitto
Finnish Athletics Federation
International Olympic Committee
Finnish Olympic Committee
Finnish Workers' Sports Federation
Finlands Svenska Centralförbund
City of Turku
City of Helsinki
Finnish Olympic Medalists

After the ceremony the deceased was transported with a guard of honour to Turku, Paavo Nurmi's final resting place.

Matti Nurmi had not been very active in the Foundation during his father's lifetime, but he was elected chair on 27 May 1974. The annual board meeting was opened by Professor Pentti Halonen, who continued as vice chair. The meeting started with a moment of silence in memory of Paavo Nurmi.

His friend Armas Toivonen had died just three weeks before him. Toivonen had served as deputy auditor to the Paavo Nurmi Foundation since it was established, and professional economist Guy Rask was elected to replace him.

To ensure the Foundation was governed more effectively, a working group was set up, consisting of the chair, vice chair and Arne Hovitie.

Despite the change at the top, the Foundation continued to fulfil the same mission. The next meeting was held in October 1974, at Professor Pentti Halonen's office at HUCH. The meeting decided to distribute two grants, one of 36,000 marks to finance Petri Kovanen's doctoral thesis studies for a year from 1 January 1975. The other grant for that year, 48,000 marks, was awarded to Adjunct Professor Juhani Heikkilä. The awards were made on condition that the recipients did not do any other paid work, apart from academic lecturing. Because the grants were taxable from 1 January, the board decided to increase the sum of each award by 6,000 marks, an additional total of 12,000 marks.

President Urho Kekkonen, guest of honour

The third international symposium, planned for autumn 1975 at Haikko Manor, was entitled "Physical Activity and Coronary Heart Disease". Thanks to Pentti Halonen's connections, the symposium received a very special guest of honour; President Urho Kekkonen honoured the festive dinner with his presence on 19 September.

The president gave his speech in English. Speaking as a former competitive sportsman who still trained actively, he stressed that exercise is one of the best possible ways to relax. "Jogging and skiing, which I practice, offer me an excellent opportunity of ridding myself of everyday stress. They bring me healthy exhaustion and, with it, a sensation of deep enjoyment. This, again, gives me both psychical and physical strength to face the toil of workaday life.

"Viewing, in this light, the valuable work carried on by medical experts for physical activity as a means of preventing and curing diseases, I have often recalled the medical advice adopted by the ancient Greeks: medical skill lies in the art of guessing. The significance of psychical values was expressed even better by Pindar, who wrote festal poems in honour of the Olympic winners and to whom is attributed the moral maxim that a happy state of mind is the best doctor," President Kekkonen said.

"It is important that symposia are organized where international experts concentrate on one clear problem, as you have done here now. Geographically, Finland is remote from many of the centres of medical research; we have, therefore, reason to be pleased and happy to see among us, at the present occasion, so many experts of eminent international standing.

"Paavo Nurmi made in his time his native country well known throughout the world through his almost superhuman achievements in running. It was with similar ardour that he concentrated on his actual career in life, that of a building constructor. This endurance also enabled him to establish a foundation bearing his name. Having followed Paavo Nurmi's success ever since his years of active sportsmanship, I am pleased to see that this foundation is making the world cognizant of his name in a new way."

Antti Louhija maintains relationship with Deaconess Institute

Professor Lauri Kalaja, the Director of the Deaconess Institute, died on 1 March 1976. At the Foundation's next annual board meeting on 4 May 1976, his successor was elected. Chief Physician Antti Louhija had succeeded Kalaja as Medical Director of the Deaconess Institute in the previous year.

The Deaconess Institute has a very special place in the history of the Foundation, as Paavo Nurmi was a patient there when he had the idea of setting it up.

The 1977 symposium, on 15–17 September 1977, addressed the theme of "Sudden Coronary Death". Pentti Siltanen presented on the physician-staffed ambulances, and Douglas A. Chamberlain reported on the physician-staffed ambulance system in Brighton. Pentti Halonen and Vesa Manninen led the organizing team.

8.

Setting up Science 2000 magazine

At the end of the 1970s, the Paavo Nurmi Foundation collaborated on a joint project to establish a popular science magazine in Finnish. The Finnish Cultural Foundation wrote to a few foundations on 10 January 1979 about setting up a "general science magazine". Paavo Nurmi Foundation was asked to contribute six to ten thousand marks.

The Finnish Cultural Foundation sent an updated letter on 19 April, and at its board meeting on 30 July, the Foundation decided to support the venture with 24,000 marks, an annual grant of 6,000 marks for four years starting in 1980.

The magazine working group was chaired by Professor Lauri Saxén, and its members were research director Elisabeth Helander, chief executive officer Pekka Jauho, general secretary Niilo Luukkanen, and office manager Esko-Olavi Seppälä. The secretary of the working group was Paavo Löppönen, B.Soc.Sc.

The group had approached the Paavo Nurmi Foundation earlier, in 1978. The Finnish Cultural Foundation had spearheaded the project, and the Academy of Finland and the Finnish Academy of Science and Letters were involved from the first.

The Swedish magazine *Forskning och Framsteg*, published from 1966, gave them the confidence that there would be enough interest in a popular science magazine in Finland, too. It was modelled on the US magazine *Scientific American*. The magazine was primarily aimed at 1) university and research institute staff; 2) students in higher education; 3) secondary school teachers and 4) various target groups in civil society.

The Finnish magazine *Tiede 2000* ("Science 2000") was founded by the Academy of Finland, Sitra, the Finnish Cultural Foundation and the Finnish Academy of Science and Letters. The Paavo Nurmi Foundation was one of the magazine's smaller-scale funders. Others included the Gyllenberg, Outokumpu, Paulo, Thuring and Oskar Öflund foundations, Svenska Kulturfonden, and Cancer Foundation Finland. *Tiede 2000* was 'benchmarked' to equivalent publications in the other Nordic countries. Sweden's *Forskning och Framsteg* and Norway's *Forskningsnytt* were both published eight times a year. Denmark's *Forskning och Samfundet* appeared monthly, but was only 24 pages long, half the length of the Swedish magazine. The plan was that the Finnish magazine would be published every other month for its first year, 1980.

Editor-in-Chief Jali Ruuskanen, M.Sc. (Tech), explained the concept in an interview for *Helsingin Sanomat* on 11 October 1980, when the first issue came out. "We are publishing this magazine for everyone who is interested in science, and you can find such people at all levels of society. Non-specialist readers will be able to understand the content. If background information is needed, it will be provided in the text."

From the first, Sanoma Oy was responsible for production and circulation marketing; the publisher was Tieteentiedotus ry.

The science magazine was a substantial and visible joint effort with other foundations.

Memorabilia and the first history

The respected Assistant Professor of Surgery, Pekka Peltokallio, made a written proposal that Paavo Nurmi's name be used for the first World Congress of Sports Medicine in 1983, coinciding with the World Championship, with a prize named after him to be awarded at the congress. The aim was to award $10,000 (about 55,000 Finnish marks), but the Ministry of Justice announced that the award would contravene the Foundation's own regulations, so the prize was never awarded.

Nevertheless, the Foundation stayed on good terms with sports physicians. The fiftieth anniversary conference of the Finnish Society of Sports Medicine was named the Paavo Nurmi Congress. It was held in the Rantasipi Conference Hotel in Turku from 28 August to 1 September 1989.

During the World Championship in Helsinki, the Foundation realized that they did not have any memorabilia, and so, in the meeting on 26 January 1983, it was decided to produce a Foundation medal.

The Foundation also had no history. Juhani Peräsalo, MD, agreed to write a tenth anniversary history of the Paavo Nurmi Foundation. The 1988 annual report states that Vammala Press printed 500 copies of this history of the first decade from 1968 to 1978.

In 1985 the decision was made to acquire ten bronze statuettes of Paavo Nurmi from Wäinö Aaltonen's estate at 7,500 marks each.

A one-off grant for the Paavo Nurmi Centre

Antti Louhija chaired the Foundation board meeting on 22 October 1984 in his office at the OP-Pohjola Group headquarters. One item on the agenda was a letter from Turku Physical Activity and Health Research Association regarding a research centre in Turku. It had three signatories: Professor Hannu Kalimo, chair of the association, project officer Tero Viljanen, director of health research, and physical activity research director Martti Kvist. They presented their proposal for a Paavo Nurmi Centre. "We represent the Physical Activity and Health Research Association in Turku. The purpose of the organization is to promote scientific research into physical activity and health at the said research units, paying researchers and other staff, scientific publica-

The mission of the Foundation was debated in the mid-1980s. Pekka Kare, Managing Director of the publisher Kvartto Oy, hosted the Foundation's board meeting at his offices on the island of Lauttasaari on 10 December 1984. The board decided to congratulate Duodecim Medical Journal on its centenary, with an anniversary gift of 3,000 marks to promote medical scientific publishing. At the same meeting, the board discussed the Foundation's vision for the future. To date, they had focused on supporting heart and vascular research. Pekka Kare proposed that they could do more in terms of the other aspect of their mission, public health, by supporting sports medicine, basing his case on Paavo Nurmi's key role in Finnish sport.

Antti Louhija made another suggestion. The Foundation could cover the costs of researchers' work in research centres and universities abroad for two to three years. He also argued that the Foundation could support researchers for longer than three months, as was the current practice. No decision was reached.

The Foundation gradually became a significant funder of medical research through its regular grants. In 1984, the Foundation had already funded 102 medical research projects. A total of 1,688,500 marks was awarded.

tions, training and awareness-raising activities and providing services to encourage and improve physical activity and health. The association members are Turku Social Insurance Institution, the University of Turku, and Southwest Finland Heart District.

"The association currently maintains two research units, both of which research and provide services in the field of physical activity and health. The main task of the health research unit is to research the feasibility of physical activity and its impact on health, provide physical activity counselling and health testing, related training and health education. This involves both research work and service provision. The research unit is primarily aimed at adult residents of Turku who feel that they are in good health.

The Foundation board accepted a donation from the Australian H. J. Blackboro on 11 April 1991. His interesting letter was originally addressed to the Mayor of Turku; enclosed was a cheque for a hundred pounds. The mayor could not take the money, so he sent the donation to the Paavo Nurmi Foundation. The Foundation passed the donation on to the Paavo Nurmi Heritage Association, to further the particular request made by the letter writer; to use the money to renovate Paavo Nurmi's old home, which had fallen into disrepair.

The Foundation board met at the new offices of Kvartto Oy in Vantaa on 13 November 1991. One item on their agenda was a grant request from the Paavo Nurmi Heritage Association. The board approved an award of 4,000 marks.

On 30 March 1992 an Estonian researcher was awarded a grant to do medical research in Finland for six to twelve months. Vesa Manninen was authorized to arrange the matter.

"The physical activity research unit in Turku focused on sports medicine research, but also provided services, training, and held awareness-raising activities. It was aimed at top competitive athletes. The letter continued, "the association now sees fit to develop its work by founding a service, training and research centre to secure its vision and mission now and in the future. We would like to call it the Paavo Nurmi Centre."

Tero Viljanen and Ilkka Vuori had drawn up an eleven-page proposal for the Paavo Nurmi Centre, focusing on combining coaching and physical activity with sports medicine services. The aim was to create a centre which would 1) host camps providing coaching in various sports; 2) provide space for a variety of local and regional physical activity training; 3) measure the physical performance of athletes and fitness enthusiasts in various ways; 4) provide treatment and rehabilitation for sports injuries and health checks for athletes and fitness enthusiasts in an outpatient clinic; 5) conduct sports medicine research into developing coaching methods, sports traumatology and the impact of physical activity and 6) organize sports medicine education.

The Paavo Nurmi Centre was granted permission to use Paavo Nurmi's name and received a one-off payment of 4,000 marks. The Foundation did not wish to get involved in the centre's activities.

Antti Louhija's speech at the Foundation's twenty-fifth anniversary celebration

1993 was the Foundation's twenty-fifth anniversary year, which it celebrated on 7 December. This landmark event for the Foundation was held in the Diana Auditorium on Erottaja, a square in central Helsinki, with media representatives and an impressive guest list. After the welcome address from the chair, Matti Nurmi, the Adviser to the Ministry of Social Affairs and Health, Arto Niemi, offered his congratulations on behalf of the government. Antti Louhija gave a presentation on the Foundation's quarter century of history. Riitta Lassila, MD, PhD, presented on how blood clots form in the artery. The Foundation's anniversary publication, *The Paavo Nurmi Foundation: Twenty-Five Years 1968–1993*, was also launched at the event, and all the guests received a copy. Grant recipients also received the bronze Foundation medal.

Louhija recalled the Foundation's original mission to "promote heart and vascular research and public health in Finland and to support work being done in these fields". He continued, "the first board, chaired by Paavo Nurmi himself, defined the direction of the Foundation in this respect. There are two medical experts on the board today: Professor Pentti Halonen, the founder and pioneer of modern Finnish cardiology, and Professor Lauri Kalaja, the famous internist and clinician, who was deeply interested in cardiology. Grants have generally been awarded personally to scientists who wish to focus solely on research without the distraction of any other employment. Above all, we have adhered to the principle of supporting somewhat senior researchers who already have a doctorate and thus proven ability to conduct independent research, but often find it extremely difficult to find time to pursue pure research work due to other obligations. The grants are awarded at the level of a senior clinician's net pay for two to six months, depending on the length of time the applicant needs or is prepared to take for research leave from other employment.

"During its quarter century of existence from 1968 to 1993, the Paavo Nurmi Foundation had awarded 233 grants. These had given researchers the security to take 700 months of sabbatical leave, or about 60 years solely dedicated to research work.

"Was this the right approach? Did the investment pay off? It's hard to say. Naturally, the grant recipients themselves have appreciated this opportunity. What is more, the list of recipients over the last 25 years includes a very significant proportion of the leading researchers in the country today. At various points in their careers, these cardiologists, lipid metabolism researchers, epidemiologists, and holders of university chairs in these subjects have received funding from the Paavo Nurmi Foundation."

Louhija noted that the other pillar of the Foundation's work is organizing international symposia. "In the late 1960s, Finnish medical researchers were not nearly as well connected internationally as they are today, so the idea of holding the symposia was very far-sighted. The plan was to bring a group of top international heart experts to meet in Finland for a few days, give presentations, exchange ideas and forge personal relationships with Finnish researchers."

Louhija did give a very good example of the meaning of personal relationships. "The Director of the London Royal Postgraduate Medical School and Hammersmith Hospital, Sir John McMichael, was a key supporter and helped to give the symposium a good international

In April 1995 one statuette was presented to the chair of the International Olympic Committee, Juan Antonio Samaranchi.

At the same time, Antti Louhija announced his retirement. He proposed his successor, Professor Kimmo Kontula, who was duly elected. Vesa Manninen was selected to fill the now vacant role of vice chair from 1 January 1997.

In the year 2000 the Foundation awarded 50,000 marks to the Director of the National Public Health Institute of Finland, Jussi Huttunen, in recognition of his achievements. The achievement award was made at the annual meeting of the Finnish Cardiac Society in January 2001. The Foundation's chair, Matti Nurmi, and vice chair, Vesa Manninen, presented the award at the Ministry of Social Affairs and Health, in the presence of the Minister, Osmo Soininvaara.

Chair Matti Nurmi presenting the Paavo Nurmi Foundation Award to Director-General Jussi Huttunen. Petri Manninen (left) and Vesa Manninen look on.
(Paavo Nurmi Foundation)

Minister Osmo Soininvaara (right) attended the ceremony.
(Paavo Nurmi Foundation)

reputation from the first. He has been called the most important clinical researcher of his day, and fortunately was also a great role model and personal friend of Pentti Halonen."

Louhija recalled that the first Paavo Nurmi Symposium held in Haikko Manor the year after the Foundation was established. "Since then, they have been held every two or three years, with 20 or 30 participants. Ten symposia have been organized to date. Their key contribution has been to stimulate heart and vascular research in Finland and international collaboration. Yet the Foundation is not restricted to research. It has facilitated broader public health projects, such as donating physician-staffed ambulances, supporting dialysis provision, contributing to the establishment of popular science magazine *Tiede 2000* and, in the last few years, supporting Estonian cardiologists' postgraduate studies in Finland."

Antti Louhija concluded his speech by citing President Urho Kekkonen, Paavo Nurmi's friend and fellow sportsman, who addressed the concluding banquet at the third Paavo Nurmi Symposium in 1975, saying, "having followed Paavo Nurmi's sporting success, I was delighted to discover that this Foundation is making his name known in a new way."

Finally, he quoted the founder, Paavo Nurmi. In his opening address to the very first symposium in 1969, Paavo Nurmi openly described his own illness and concluded, "I was not used to surprises, but this illness surprised me."

The Foundation medal, Pulsus Aureus

The board felt the need for some memorabilia to share in international contexts. The artist Teuvo Salminen was commissioned to create a medal in 2005. The medal has an image of Paavo Nurmi running with the Latin phrase *Pulsus Aureus* (golden pulse) on the front, and *Paavo Nurmi Foundation* written on the back.

Sculptor Teuvo Salminen created the Pulsus Aureus medal, based on the original sketch by Kimmo Kontula. (Paavo Nurmi Foundation)

The Foundation board strove to keep its activities up to date. The 2006 annual report tells us that the Foundation, in collaboration with the National Institute for Public Health in Finland, organized a high-quality international seminar for experts in the development and prevention of heart and vascular disease during childhood and adolescence. The seminar was held at the Lasaretti Hotel in Oulu from 13 to 15 December 2006.

Kimmo Kontula, a member of the board, conceptualized the design. Previously, he had designed the logo for the emeritus members of Duodecim and the Helsinki Chapter of the Duodecim Society.

"Teuvo Salminen drew the figure of Paavo Nurmi running on the front of the medal. It seems he liked my idea. The runner's heart rate, or ECG reading, is also part of the design. I never saw Paavo Nurmi's heart records, so I don't know if his ECG looked like this. But it is a good way of showing that the heart and heart research are so central to the Foundation's work. On the back, there are two running tracks curved into the shape of a heart." Kimmo Kontula explained the idea behind the design in an interview on 19 December 2017.

The year the medal was struck, Kontula had the honour of giving the Matti Äyräpää Award Lecture. The idea of having a medal had nothing to do with gaining recognition for himself. For Kontula, "giving the Matti Äyräpää Award Lecture was certainly my greatest scientific honour. Receiving research funding from the Paavo Nurmi Foundation was very important to me. I remember that I was able to use the grant to do four months of research."

While some, like Petri Kovanen, who Kimmo Kontula calls a "star researcher", make it to the top by spending their entire career absorbed in research work, others, like Kontula himself, spend their time on administration, teaching and treating patients.

Professor Kimmo Kimmo Kontula opened the Paavo Nurmi Symposium in Turku in 2016. (Rami Nummelin, PNG)

"I have researched, treated and taught about heart and vascular disease," Kimmo Kontula said in his interview.

He was also – somewhat reluctantly – a senior administrator. First he served as Dean of the Faculty of Medicine at the University of Helsinki. He was then appointed vice-rector of the entire university. Besides that, he served on the board of trustees of the Finnish Cultural Foundation (FCF) for nine years, and for five of these until 2006, he chaired it. He then moved to the supervisory board of the FCF (2006–2015), chairing it for the last two years of his term.

Kontula noted that the Foundation has changed its grants policy somewhat in the last few years. "In the past, the idea was to free up mid-career physicians to focus on research, without any clinical responsibilities."

The grants system was reformed in 2007. It was decided to make one large award of €100,000, besides the usual grants and travel grants. In February 2008, an award of €50,000 was made to the National Public Health Institute of Finland for its project to create an electronic handbook for child welfare clinics in 2008 and 2009.

"This still happens, but in recent years, more and more grants have been awarded to fund doctoral research. More and more of the purely clinical research funding has gone to cellular and molecular biology research. Many of the research projects funded by the Paavo Nurmi Foundation today could be described as *translational*. You can go straight from the patient's bedside into the lab, do some tests to find out what condition the patient is suffering from and identify any abnormalities, and then go back to their bedside to refine the diagnosis and adjust the treatment. Information is transferred from bedside to bench and back again."

Kimmo Kontula is a keen sportsman himself, who does not restrict himself to one game. His health has been his greatest sporting achievement. He has played lower-division football, and enjoys other ball sports – he still plays basketball. In the 10K doctor's run, his time was 38:45 and his marathon time was 3:50.41. Now he is an almost fanatical sports fan.

Amending the Foundation Constitution was discussed in 2010. New rules of procedure for the board were presented, with an upper age limit of 70 for board members. In the end, an age limit of 75 was agreed on. New members were to be elected for a maximum of two four-year terms.

Fortieth anniversary in the Finlandia Hall

The Foundation celebrated its fortieth anniversary in style in the Finlandia Hall on 3 April 2008. The Minister of Social Affairs and Health, Liisa Hyssälä, congratulated the Foundation on behalf of the government.

Leaders in medicine and sport graced the distinguished guest list. The Finnish Athletics Federation was represented by its honorary president, Jukka Uunila, and former chair, Yrjö Kokko; the director of the

At the celebration of the Paavo Nurmi Foundation's fortieth anniversary in the Finlandia Hall, Professor Ilkka Pörsti's research group received a grant of €100,000. (Paavo Nurmi Foundation)

Sports Museum of Finland, Pekka Honkanen, also attended.

The Foundation awarded a new large grant of €100,000 to Professor Ilkka Pörsti's research group, for the HaemoDYNAMICs in Primary and Secondary Hypertension Study.

At the same celebration, the Foundation awarded €90,000 in traditional grants and €7,900 in travel grants.

9.

An endowed professorship

The Paavo Nurmi Foundation donated €200,000 to the Future Fund of the University of Helsinki in 2011. The fund helps make the university's strategic objectives for the future a reality. Rector Thomas Wilhelmsson signed a donation certificate for the Foundation on 20 June 2011, and the state supported the gift by providing double the amount in additional funding.

The donors requested that the University of Helsinki use the interest from their donation to establish a professorship in coagulation disorders.

Riitta Lassila becomes Paavo Nurmi Professor

Riitta Lassila (b. 1957) is the first ever Paavo Nurmi Professor. She was familiar with the Foundation's work, having received a research grant

Professor Riitta Lassila

herself in the past. She had presented on the origins of arterial blood clots at the Foundation's twenty-fifth anniversary celebration.

Riitta Lassila started her professorship in May 2013, giving her inaugural lecture on "Blood coagulation disorders, from haemorrhage to blockage" in December of the same year. The part-time (35%) professorship was for five years, until May 2018.

An internist, Lassila graduated from high school in 1976 and was awarded her MD, PhD degree in 1989. The title of her doctoral thesis was "The thrombogenic and vasoactive effects of cigarette smoking with special reference to peripheral arterial disease."

She was one of the generation of cardiologists trained by Professor Pentti Halonen. His 'school' had deep roots in the Wihuri Research

Institute and the research directions Halonen had pioneered. So she embodies the original spirit of the Paavo Nurmi Foundation, and her professorship is a natural continuation of the heart and vascular research it has funded for half a century.

"In 2000, we organized an international symposium on the island of Hanasaari, focusing on the mechanisms behind blocked arteries. I received grants from the Paavo Nurmi Foundation in 1990, 1992 and 1993. Since then, most of my research funding has come from EVO [state research funding], and I have also received a four-year grant from the Academy of Finland," Professor Riitta Lassila said.

She works in the tower building at Meilahti Hospital, and does her research at Biomedicum Helsinki. "I am responsible for teaching at various levels: undergraduate and continuing education for doctors and nurses, responding to requests from various specialist associations, international training events and specialist roles in different sectors. I have been the opponent at doctoral defences on eleven occasions, once in Finland, mostly in the other Nordic countries.

"Our research team is based in Biomedicum. I have supervised twelve doctorates, and have four on the go at the moment; three of them should defend their thesis next year," Lassila said in November 2017.

In 2011, besides the professorship, the Foundation awarded a large grant of €50,000 to Professor Perttu Lindsberg's research group to study genetics, biomarkers and targeted treatment for carotid artery degeneration and stroke. The Foundation also awarded €28,000 in postdoctoral fellowships and €25,000 in travel grants. The total sum awarded in 2011 was €103,000.

The Foundation offers valuable support for coagulation disorder research

Professor Riitta Lassila thanked the Paavo Nurmi Foundation for supporting her specialism.

"The Foundation's support for medical science is very important. It has enabled specialist training and research continuity in the field of coagulation disorders and contributed to raising awareness of coagulation disorders in many areas of clinical practice. In future, foundations will play an increasingly important role in financing medical research," Professor Riitta Lassila said.

10.

The Nurmi chairmanships

The chairs of the Foundation share the same surname.

Paavo Nurmi was the founder and first chair from 1968 to 1973. He donated the initial capital, so naturally he decided who was on the board and what the Foundation would focus on. Establishing the Foundation was his idea, and he had strong views about the direction it should take.

In a way, this was his third successful career. He had been the best runner in the world, and then a thriving businessman. For his last few years, he also became the patron of the Foundation which he used to improve people's health and quality of life. But his time was shorter than many could have expected. His work as chair of the Foundation was left unfinished.

Matti Nurmi's long service

After his father's death, Matti Nurmi stepped into his shoes, serving as chair of the Foundation for the next four decades.

He continued in the direction that his father had set, aiming to maintain the high level of medical expertise on the board, but also brought his own business management skills to the role. Drawing on his entrepreneurial and property investment experience, the Foundation actively sought out such investments to grow and stabilize its capital resources.

Mika Nurmi, Matti's son, was elected as an associate member of the board on 6 June 2006, and became a full member on 9 May 2007. From then on, the board had six members.

For decades, Matti Nurmi ran the family businesses (Nurmi-Yhtiöt Oy), preparing Mika Nurmi to take over. The father gradually handed more and more responsibility to the son, first in the family business, and later in the Paavo Nurmi Foundation.

Matti Nurmi believed that in 2013, the time was right. He wanted to lead by example, showing that serving the Foundation was not a lifetime role. So he gave due notice that he would be resigning as chair on 11 June 2013. As a token of thanks for his many years of work, he was presented with a Paavo Nurmi statuette.

From then on, Mika Nurmi represented the family as chair.

Mika Nurmi matures as an entrepreneur

Mika Nurmi, born in 1982, is the chair of the board of Nurmi-Yhtiöt Oy, his father's long-established group of companies in the men's formal wear, import and property businesses.

Mika Nurmi's first business was the tool wholesaler Työkalutukku Oy, which is now called Kone-Boss Oy. Later he took on responsibility for other family companies, Perkko Oy and Matex Oy. Besides these three firms, the family also managed a significant portfolio of proper-

Minister Liisa Hyssälä congratulated the Paavo Nurmi Foundation on behalf of the government of the Republic of Finland at its fortieth anniversary celebrations in the Finlandia Hall. (Paavo Nurmi Foundation)

ties. Mika Nurmi became chief executive officer of Nurmi-Yhtiöt Oy in 2015 and chair of the board in 2017. It does seem to have been the right time for a handover, as Matti Nurmi turned 85 in November 2017.

Mika Nurmi grew up in a family of entrepreneurs. Ever since the age of fifteen, he spent his summer holidays more or less at work, and also worked while he was at high school. He found work much more interesting than studying.

He started out in the warehouse of the family tool business. Although he was getting more and more interested in working, he studied part time, finished high school and graduated in business administration. After completing his military service, he became chief executive officer of Työkalutukku Oy, and gained other knowledge through prac-

tical business training. "I learn best by working," the still-young entrepreneur said.

Mika Nurmi is now chair of the board of Kone-Boss Oy, and he makes time in his busy schedule for the business, striving to be there for every customer event.

After the tool wholesale business, Mika Nurmi took over the hundred-year-old Perkko Oy, which was incorporated into Matti Nurmi's group of companies in the 1980s. Perkko Oy, originally an importer and wholesaler of quality timepieces and jewellery, is now also a thriving office technology company, providing copy machines, video projectors and other technical office solutions. As offices make the transition to cloud services, Perkko is also shifting from hardware to software, adapting to the digital revolution.

"Fortunately, we have good managers, talented sales and maintenance staff," said Mika Nurmi.

Matti Nurmi founded Matex Oy with his mother Sylvi in Turku in 1950, and it is still an important part of the Nurmi portfolio. Matex makes ties and scarves, both for national chains and to order for a wide variety of customers.

The company also imports men's formal wear, such as tuxedos, shirts and shoes.

Nurmi-Yhtiöt Oy has changed over the years. Matti Nurmi was involved in all sorts of ventures, but since his time, the group of companies has specialized. While the family business seems to work in its current form, it is not set in stone. Mika Nurmi keeps up to date with business developments.

"Import is our core competence," he stated in an interview on 11 January 2018.

Mika Nurmi was born to be an entrepreneur. Entrepreneurship and how to grow the business were the most important things he learned from his father, Matti Nurmi. In a family business, enterprise came naturally from a young age.

Mika Nurmi could follow his father's work as an entrepreneur and executive closely, and he is particularly grateful for his father's "busi-

Matti Nurmi, Chair of the Paavo Nurmi Foundation, addressing the audience at the Foundation's fortieth anniversary celebration in the Finlandia Hall, April 2008.
(Paavo Nurmi Foundation)

Matti Nurmi, chair of the board, awarding grants at the Foundation's fortieth anniversary celebration in 2008.
(Paavo Nurmi Foundation)

Chair of the board, Mika Nurmi (right), vice chair Vesa Manninen, executive Petri Manninen, and board members Pekka Kare, Kimmo Kontula and Tuula Entelä at their first meeting of 2018. (Compic/Paavo Nurmi Foundation)

ness sense". Matti Nurmi had his own vision and was always striving towards it.

Mika Nurmi believes he has much the same approach to running the business, "more by common sense and intuition than by numbers". He also manages as significant property portfolio for the Nurmi group. Some properties are purchased, but the company mainly builds them, mostly in Turku and the Helsinki metropolitan area.

The property business links Mika to his grandfather, Paavo Nurmi. He has also inherited the chairmanship of the Paavo Nurmi Foundation, which gets its income from property, just as Paavo Nurmi had planned.

Mika Nurmi holds a number of positions of trust and is an active urban developer. He is chair of the board of Turku City Centre Development, which is working to make the city centre safer and more

vibrant. For a long time, he also chaired the board of Kakskerta water cooperative in Turku. Mika Nurmi also gives his time to a number of other development projects, and is a driving force behind the Paavo Nurmi Games. He is more interested in public health than extraordinary sporting achievements. For him, getting children moving is a worthy end in itself. When young people get to see their heroes, they are inspired to do more sport themselves. In this context, Mika Nurmi sees his role as fulfilling the Foundation's aim to promote public health.

He has a relaxed approach to physical activity right now, and enjoys the great outdoors. "Hunting and the dog get me out into the wild, but that is not really exercise. I do other kinds of physical activity – walking, going to the gym, sometimes a bit of tennis."

During Mika Nurmi's chairmanship, the long-serving vice chair, Professor Vesa Manninen, has been responsible for sustaining the Paavo Nurmi Foundation's medical focus.

11.

Vesa Manninen – Halonen's right-hand man

Professor Pentti Halonen was considered the father of Finnish cardiology, and a group of researchers developed around him. He also honed the medical focus of the Paavo Nurmi Foundation, developed by Antti Louhija, Kimmo Kontula and Vesa Manninen. Louhija succeeded Lauri Kalaja on the board. When Louhija retired, Professor Kimmo Kontula took over.

The vice chair of the Foundation, Vesa Manninen (b. 11 December 1940), was Pentti Halonen's student from 1963. He had praise for his old teacher.

"A real Eastern Finnish gentleman. He was charismatic, he charmed patients and doctors alike. Halonen gave doctors and researchers the chance to work and get things done," Manninen said in an interview on 31 October 2017.

Vice chair Vesa Manninen (second from left) and board member Kimmo Kontula (right) in conversation with researchers at the fortieth anniversary celebration of the Paavo Nurmi Foundation at the Finlandia Hall in 2008.
(Paavo Nurmi Foundation)

The Professor made sure he knew what was going on in the world. Every day he bought the *Express* and also read *Time*, *Newsweek* and *Der Spiegel*.

Students and others will remember Halonen smoked like a chimney – he always seemed to be lighting his next cigarette while it was still in his pocket. Camel was his brand.

"Halonen always had a cigarette on his bottom lip. He smoked a pack or two a day. But he didn't breathe the smoke in. He was a smoker, but in his own way," Manninen said.

Vesa Manninen described Halonen's smoking habit as a quirk. "We all have our own mannerisms. In golf, for instance, you have to do certain things before hitting the ball. If you don't, it doesn't work."

Vesa Manninen was Pentti Halonen's successor as Director of the Wihuri Research Institute, from 1983 to 1995.

"Jenny and Antti Wihuri's Foundation asked me to work out what to do with the Salus Hospital and Research Institute after Pentti Halonen stepped down. In the 1980s, it would have been expensive to run a private hospital, although the board was ready to try, especially if they could invest in alternative treatments. After consulting experts, mostly Jussi Huttunen, we decided to close the hospital, and focus all our energy on the research institute. I convinced Petri Kovanen to take on the role of research and scientific director. I was the link to the Fund's board of directors, as I was known and trusted.

"I did not receive remuneration for this, and served in this role for over a decade alongside my other work. Besides clinical work, I was also busy with Teollisuusvakuutus [later the If insurance group], my own practice and the Helsinki Heart Study. Nevertheless, I dropped by the Institute almost every day. I even supported the Wihuri Research Institute's work with my own American-focused research. I was busy, but it was fun. My family did suffer. Both children survived well, though," Vesa Manninen said.

Manninen graduated from high school (I Normaalikoulu in Helsinki) in 1960, and achieved his MD degree in 1968 and his MD, PhD degree in 1970. He specialized in internal medicine, practising from 1974. Vesa Manninen was registrar of Salus Hospital in 1969 and 1970, then registrar, clinical lecturer and chief registrar of Internal Medicine Clinic I at HUCH from 1970 to 1976.

He was also an occupational health doctor for Teollisuusvakuutus from 1971 onwards, and has published on cardiac glycosides, ion transfer, and on lipid metabolism and its disorders and treatment.

A visit to thank Paavo Nurmi

Vesa Manninen was one of the first recipients of a Paavo Nurmi Foundation Award in 1968. As Pentti Halonen's right-hand man, it was only natural that he got involved in the Foundation. He started by receiving funding, and then played a major role in organizing the 1979 and 1981 symposia. On 24 March 1982, he was invited onto the board.

When he was awarded his grant in 1968, Vesa Manninen went to thank Paavo Nurmi himself.

"I only met Nurmi just the once. He was a typical Finnish man of few words. I did go to thank him at his home on Rajasaarentie. It was just an ordinary house, an old gentleman's home. It was all really nicely done. Everything ship-shape. Nothing fancy. It was very practical, but in retrospect it lacked a woman's touch," Vesa Manninen said in an interview on 31 October 2017.

"At the time, I was finishing my doctorate, and Simo Salminen was my supervisor. I started working at Salus in 1963, mainly as Simo Salminen's assistant, and continued along that path," Manninen said. Vesa Manninen worked at HUCH, mainly at Meilahti Hospital, from 1971 to 2004. Like Pentti Halonen, he was an internist. "Halonen's overall field was internal medicine, and he specialized in cardiology. But he was much more than just a cardiologist," Vesa Manninen said.

Pentti Halonen was unanimously appointed Professor of Internal Medicine in 1953. "He was a people person. He wanted to take care of sick people. He wanted them to have a doctor who cared about them. So he had an extraordinarily wide range of patients from all over Finland," said Vesa Manninen.

For many patients, going to Helsinki for a check-up with Halonen was the highlight of their year.

Vesa Manninen traces the origins of the Foundation to Paavo Nurmi's own illness. "It all probably started when Paavo Nurmi experienced vascular disease at a relatively young age, and he did not have any

of the usual risk factors; no high blood pressure, not a smoker, and he still got ill.

"The doctors told Nurmi that they didn't know the cause of his heart disease. Like the businessman he was, he thought, 'we need to sort this out, let's set up a foundation, get some experts together, fund them. And they'll solve the problem.'

"What happened next was just like in the States. They decided they had to land on the moon and find a cure for cancer. They made it to the moon. That's just maths and physics. You can get to the moon just by pushing for it, that's relatively easy. But we still don't know where cancer comes from. That goes to show that biology doesn't follow the laws of physics."

Support for heart and vascular research from the Paavo Nurmi Foundation has helped medical science along the road to victory.

"The risk has been reduced. Men in the prime of their life don't simply drop dead. At least, it's rare these days. We have managed to delay the condition by two decades. Nobody dies of high blood pressure any more. But we all have to die at some point," Vesa Manninen said.

The Paavo Nurmi Foundation helped Vesa Manninen complete his doctoral thesis, and he is grateful.

The main aim of the funding is to free doctors from their other commitments to focus on research. "To give doctors the chance to take a sabbatical. So they don't need to earn a living by other means, but can continue researching. We release capacity from daily tasks to perform scientific research. The original aim was to hold symposia every other year, but we didn't have the resources to keep going at that pace. We're talking about the best scientists in the world – it's always a challenge to get the contacts and get them to come here. World-class researchers have contributed to the symposia. Sir John McMichael comes to mind first – a top English cardiologist. There are others, of course."

Pentti Halonen had his own daily routine. He went to Meilahti in the morning. The registrar did the bulk of the work at the Salus Hospi-

tal, and was the first to examine the patient. In the afternoon, he went to Salus, and took the lift to the first floor. Routine work alone was time-consuming and on top of this, he might have up to 30 patients on his books at once. Halonen did his rounds, listening to each patient's heart with his stethoscope.

For Vesa Manninen, Pentti Halonen is one of the last great old-school specialists. Finland now has 20,000 doctors. In the 1930s, there were only a couple of thousand; but the population has not increased at the same rate.

Manninen followed Halonen's career closely, including his work as the personal physician of two successive presidents.

"Halonen was Paasikivi's doctor, and Paasikivi appointed him as professor. His colleagues were not surprised to see him become Kekkonen's doctor, too. After all, he'd already been Paasikivi's."

The Wihuri Research Institute connection

One day in the mid-1980s, two doctors met in a lift in Meilahti Hospital – one was Vesa Manninen, and the other was Petri Kovanen. Manninen asked, "couldn't you come to Salus?"

Petri Kovanen remembers it as the encounter that changed his career, and lifted him back to the sphere of science. Manninen had just taken over as Director of the Wihuri Research Institute.

Kovanen was organizing the ninth Paavo Nurmi Symposium, "Lipoproteins and the Pathobiology of the Arterial Intima", held from 7 to 9 September 1989 at Haikko Manor. Professor Heikki Frick, Adjunct Professor Antti Louhija and Adjunct Professor Vesa Manninen were also on the planning committee.

Three years later, with Adjunct Professor Ville Valtonen, Petri Kovanen was on the working group planning the tenth symposium: "The Role of Infection and Inflammation in Vascular Disease". The other team members were Heikki Frick, Antti Louhija, Vesa Manninen,

Riitta Lassila and Kimmo Mattila, MD, PhD. The symposium was held at the SYP Bank's Unitas College in Vuosaari in August 1992.

The International Paavo Nurmi Foundation Award

On the centenary of Paavo Nurmi's birth in 1997, Petri Kovanen received the first ever International Paavo Nurmi Foundation Award of 50,000 marks. In 1975 Petri Kovanen had completed his doctoral thesis under a grant from the Foundation. The work had been performed in the Scientific Laboratory at Meilahti Hospital and supervised by two internationally renowned Professors of Internal Medicine, Esko Nikkilä (triglycerides and diabetes) and Tatu Miettinen (cholesterol metabolism in humans). Nikkilä had proposed the topic, cholesterol metabolism in fatty tissue. In the final stage of the thesis work, Miettinen, again, introduced Kovanen in an International Congress on Lipids and Lipoproteins in Venice to Dr. Joseph Goldstein, who had arrived from Dallas, Texas to attend the meeting.

"With his colleague Michael Brown, Goldstein had just made a ground- breaking discovery – the receptor that binds to LDL particles which carry bad cholesterol," Petri Kovanen said in an interview on 10 November 2017. "So, with my wife and two children, we set off in late 1975 to join the small research group, which only consisted of a few postdocs at the time. My most important research result was discovering that statins reduce LDL cholesterol levels by increasing the number of LDL receptors in the liver. This 'imaginary receptor' soon proved to be a key cholesterol metabolizer. Michael Brown and Joseph Goldstein received the Nobel Prize in Medicine for their discovery of the LDL receptor in 1985, the last time it was awarded for heart and vascular research."

Kovanen graduated in internal medicine in 1984, and worked as an internist in Meilahti for a while, but his heart was in research.

Vesa Manninen succeeded Halonen as Director of the Wihuri Research Institute, where research work continued after the hospital closed. "I fell in love with the atmosphere; the research environment felt almost holy. Jorma Kokkonen was there, and, as a young MD completely devoted his time to research. We started investigating mast cells and vascular disease together, which was a new thing at the time. Pentti Halonen had already been interested in this type of cell," Petri Kovanen recalled.

"My cell biological know-how from the USA was a great help when Kokkonen and I started researching mast cells. The link between mast cells and cholesterol was a completely new direction. We started to cultivate mast cells isolated from rats, to work out how they could influence the metabolism of LDL particles, and then HDL particles, in the coronary artery wall. Vesa Manninen graciously allowed me to change my line of enquiry and direct the research without restrictions. He has influenced my research career more than anyone else. Gratitude is not enough to describe how I feel. I presented my results in the Matti Äyräpää Award Lecture in 2004, entitled 'Coronary artery mast cells: allergy cells at a wrong address?'

"Mast cells are also called inflammation cells these days. The link between inflammation and cholesterol was a lucky coincidence, especially since we now know that managing inflammation reduces coronary artery death; apart from cholesterol, this is the key aspect of coronary heart disease research today.

"Halonen began a tradition known as the Salus Shunt; cardiologist registrars at Meilahti go to Salus and labour day and night on their doctoral research. When the hospital closed, Vesa Manninen upheld this noble tradition. Some of the researchers were doctors, but many others joined them; biochemists or even biophysicists, and one was a veterinarian. So the Wihuri Research Institute was an excellent interdisciplinary research community in the Salus tradition. A large group of biomedical and medical researchers graduated from there.

"Perhaps its most important task was to train clinical researchers. This 'endangered species', which Joseph Goldstein worked hard to promote internationally, found refuge in Salus – often with funding from the Paavo Nurmi Foundation," Petri Kovanen concluded.

Petri Kovanen was appointed Director of the Wihuri Research Institute in 1996, and continued in the post until he turned 68, in 2013. In the same year, the Wihuri Research Institute moved from the Meilahti campus to join the 'thousand researchers' at Biomedicum Helsinki.

12.

The Foundation's investment activities

At its meeting on 27 May 1971, the board of the Paavo Nurmi Foundation approved Arno Hovitie's proposal to invest 100,000 marks with the PYP Bank, which also took care of the Foundation's accounts. A year later, at its meeting on 23 May 1972, the board decided to buy shares worth up to 200,000 marks in two companies, Kymi Oy and Pargas Kalkkitehdas Oy.

The board wanted to ensure it maintained high levels of financial expertise, so on 11 April 1991, Antti Savolainen was invited to become a board member. The Master of Laws with court training had been the lawyer at insurer Teollisuusvakuutus, and was now its chief financial officer. He served on the board from 1991 to 2005. He was also managing director of Sampo group insurance company Suomen Vakuutus Oy, and was asked to bring his property expertise to the board.

Antti Savolainen in 2017. (Kalle Virtapohja)

"Matti Nurmi and Arne Hovitie got in touch. I'd got to know Hovitie slightly through the property business. He was the manager of the Forum branch of the SYP bank," Savolainen said.

Antti Savolainen remembers discussing the financial management of the Foundation. The medical members of the board would have liked to spend more to further the Foundation's medical aims, but its income came from property, which had to be managed and maintained, and that cost money; capital was always needed for new investments.

One major decision was to cash in the investment portfolio. The chair, Matti Nurmi, warmed to the idea slowly, but in the end the choice was made. The Foundation's properties in the centre of Helsinki provide a steady stream of revenue and are increasing in value.

"Managing an investment portfolio actively means buying and selling all the time. You need a special skill set to do it, which we did not have," Savolainen said.

The Foundation's executive, Petri Manninen (Paavo Nurmi Foundation)

Petri Manninen joins the Foundation, 1995

In March 1994, Arne Hovitie told the chair that, at his age, he felt it was time to retire. However, he continued in post as executive until he died on 28 October 1994. The Foundation had not yet decided on his successor.

In December 1994 the secretary of the board, then trainee district judge Petri Manninen, became an authorized co-signatory, and on 24 January 1995, he took on the role of executive. At the same meeting, he was authorized as sole signatory of all the Foundation's accounts and granted access to the safety deposit box.

"The Foundation's initial capital came from two apartment buildings. In a way, we've gone back to our roots, as all our income now comes from property," Petri Manninen explained in 2017.

"We use half and save the other half."

Petri Manninen, a Master of Laws with court training, manages the Foundation's finances and investments. The executive and the board

divide their roles clearly. The board makes the big decisions, but managing the investments is an absorbing task. "There weren't really shares any more in my time. I think they were cashed during Antti Savolainen's term," Petri Manninen said.

"We have managed the Foundation's assets by trying to exchange smaller properties for larger ones. For example, we sold the one on Valpurintie when we bought the one on Franzéninaukio. Matti Nurmi had heard that the building was for sale, and we arranged a loan for the purchase."

For instance, the Foundation bought the plot on Pohjoinen Rautatienkatu at the end of 2012, planning to build an assisted living facility for senior citizens there. The Leppäsuo project, as it was known, had started way back in 2004. In the end, it got too big; to cover the costs incurred, the Foundation sold the company it had established to the pension insurer Etera.

"In Hovitie's day, we bought commercial premises from Olari. We sold these in the early 2000s. In terms of the figures, concentrating on apartment buildings in Helsinki has been a very effective strategy."

In 2009, Petri Manninen's title changed from secretary to executive.

"When the rent controls were lifted on 1 January 1995, it was possible to charge market-based rents for the apartments which reflected their real value."

Currently, the Foundation owns a property on Linnankoskenkatu which was fully renovated in 2014; in 2017, the building on Franzéninaukio was also renovated.

"The principle is to increase the size of the property at the same time. When we add an attic, we get 400 square metres' more space. We can also increase our income by breaking up larger apartments into smaller ones. We can return a 100 m2 apartment to its original state – three studio flats."

Now the building on Franzéninaukio has been renovated, the Foundation owns nearly 80 rental flats.

"Our properties are in good locations, they're in demand. We are constantly keeping an eye on the market and checking out new sites. We have analysed numerous properties over the years – every single one is valued separately. Because we distribute about €200,000 in grants every year and organize symposia about every three years, we need to ensure that our income is as regular as possible and very predictable," Petri Manninen explained.

"In 2013 we made a donation to the university, requesting that it be used to fund a part-time (35% working time) professorship. Riitta Lassila was selected to take on the role, and has used the time to do research. In that year, we also received additional state funding for the professorship.

"Paavo Nurmi wanted to use his foundation to do something new. And he did, donating the physician-staffed ambulances and dialysis machine. We adhere to the same principle in choosing projects today."

Property expert Tuula Entelä joins the board, 2017

The Foundation's board has changed little over the years, but more new members joined during Matti Nurmi's chairmanship. This change began in 2012, when it was decided to limit the terms for new members to two four-year periods, and introduce an upper age limit of 75.

Jukka Terhonen, officially recognized for his work as a master builder with the honorary title of a councillor ("*rakennusneuvos*"), became the first new board member selected under the new system in 2013. He was succeeded by Tuula Entelä.

"The property expert Tuula Entelä took over from Jukka Terhonen in 2017, as the first woman on the board. She was just retiring from her role as investment manager at a major construction company, so she had time to give to the Foundation," Petri Manninen said.

Board membership of the Paavo Nurmi Foundation is really honorary; the fees for attending meetings are symbolic, as board members choose to give up their free time for a good cause.

"We know each other personally, so it has worked well," Petri Manninen commented.

The board has clearly sought to ensure that members have expertise in one of three fields: medicine, finance or property.

In January 2005, Antti Savolainen announced that he was retiring from his role as finance expert. To thank him for his dedication to the Foundation, the chair, Matti Nurmi, presented him with a bronze Paavo Nurmi statuette.

At its meeting on 5 April 2005, the board decided to select Georg Ehrnrooth to take Antti Savolainen's place. The investment and management professional had served as chair or managing director of several companies. The Foundation has benefited greatly from his financial expertise. He also has a wealth of experience in working with foundations, as the chair of the Louise and Göran Ehrnrooth Foundation. "Investment is a long game. In the case of foundations, it is forever," Georg Ehrnrooth explained.

13.

Paavo Nurmi Symposia and a Nobel laureate

The Paavo Nurmi Foundation has two core competences: awarding grants and organizing symposia. The first symposium made the national headlines. It was a new way of working, combining Paavo Nurmi's legendary name while he was still living with the best heart research in the world.

The subject of the first symposium was blood clots and narrowing arteries in the heart. Twenty-one international and four Finnish researchers were invited to present. On 23 September 1969, the *Helsingin Sanomat* reported: "Presenters from all over the world come to the heart symposium".

According to the original plan, the next symposium was held two years later, when the headlines were more attention-grabbing: "Doctors' war on fat", and "Fat controversy stains doctors' meeting" (both *Helsingin Sanomat* 12 September 1971).

Antti Louhija in 2017. (Kalle Virtapohja)

The articles reported intense debate at the symposium about the relationship between heart disease and fatty food. Professor Pentti Halonen kicked off the discussion by asking what sort of diet a patient with high cholesterol should be prescribed. New York City University Professor Charles Friedberg and London University Professor J. P. Shillingford defended opposing views. Friedberg stressed the role of diet, but Shillingford believed enjoying one's food was important. Twenty-four top international experts followed the discussion. Friedberg acknowledged that the relationship between cholesterol and heart disease had not yet been confirmed.

"Nevertheless, if we see a man with a smoking gun standing beside a corpse, we can deduce that it was murder," Friedberg said.

Shillingford moved the discussion on with a war story about Field Marshal Montgomery and Prime Minister Churchill. "Field Marshal Montgomery avoided excessive eating, drinking and smoking. He announced that because of this, he was one hundred percent healthy. This irritated Churchill, who enjoyed his food, and replied that he was two hundred percent healthy."

On the same day, the news that Soviet leader Nikita Khrushchev had died added to the drama. The 77-year-old was reported to have died of a heart attack.

Did his fate influence the next symposium? The topic was the role of physical activity in heart health, as Pekka Aaltonen wrote on the sports pages. "If you're going to have a heart attack, you'll have one. Heart researchers' statement surprise sports enthusiasts" (*Helsingin Sanomat* 10 October 1975).

Another fascinating facet of this symposium was the plan to invite a specialist from Moscow. The seminar secretary Antti Louhija visited President Urho Kekkonen several times to move this forward, as the Moscow expert could not get a visa. The Soviet Union did not want to let their top expert meet his Western colleagues. Even the president could not persuade them. Apparently, Pentti Halonen met the Ambassador of the Soviet Union informally, who then promised to arrange the visit within 24 hours.

The next symposium also made the news – the theme was cardiac death. "Paavo Nurmi Foundation brings researchers together: 70% of cardiac deaths are sudden" (*Helsingin Sanomat* 17 September 1977).

In an interview on 31 October 2017, vice chair Vesa Manninen believed that the first few symposia held a different significance than the ones held in this millennium.

"In the early 1960s, Finland could be described as an unknown, remote country. The important thing then was to make Finland better

known abroad, using Paavo Nurmi's name, as he was an international star. His name attracted better known speakers.

In those days, we needed to bring international influencers here. But we are no longer the remote country we were then. The symposia are still important, though. A high-level scientific symposium at a good venue is still good for Finland's international image.

We need to do everything we can to promote Finland as a brand, so the world knows about us in a positive sense. In today's world, that's absolutely essential.

We have done well in our own sphere. It's worth carrying on," Vesa Manninen stated in an interview.

Shinya Yamanaka's public lecture in Turku

In late summer 2016, the citizens of Turku had a rare opportunity to listen to one of the most prestigious medical scientists in the world; the Japanese stem cell researcher, Professor Shinya Yamanaka. The 53-year-old Nobel laureate gave a lecture in the Sigyn Hall on the opening day of the sixteenth Paavo Nurmi Symposium, 31 August 2016.

Shinya Yamanaka is the first Nobel laureate to present at the Paavo Nurmi Symposium, although other presenters achieved the same heights. In 1979, the English biochemist John R. Vane, later Sir John Vane, attended. Three years later, he was awarded the Nobel Prize with two Swedish researchers for his prostaglandin research.

Japanese scientist Shinya Yamanaka was awarded for his stem cell research in 2012, first with the Finnish Millennium Technology Prize, and a few months later with the Nobel Prize in Medicine. The director of the Center for iPS Cell Research and Application at Kyoto University and Professor of Anatomy on the San Francisco campus of the University of California, Yamanaka was the most interesting international name at the eighteenth Paavo Nurmi Symposium. His lecture was entitled "Induction of pluripotency by defined factors".

Foundation Chair Mika Nurmi (left), Professor Shinya Yamanaka and Professor Katriina Aalto-Setälä, at a successful public lecture event held in Sigyn Hall Turku. The public lectures were held in 2016 on the first day of the Paavo Nurmi Symposium. (Rami Nummelin, PNG)

The three-day Paavo Nurmi Symposium was held in Turku for the first time, and the first day was open to the public. Besides Yamanaka, the other speakers on the first day were Swedish Professor Kenneth Chien, and Finnish professors Jussi Huttunen and Katriina Aalto-Setälä.

Huttunen's title was "What makes the world ill". As the first director of Finland's National Institute for Health and Welfare (formerly the Public Health Institute), Huttunen presented a broad and deep overview of heart and vascular disease in Finland and globally, including its significance in terms of public health.

Katriina Aalto-Setälä's public lecture was entitled "Stem cells in heart disease diagnosis and their particular benefits for risk groups".

Her work makes use of Yamanaka's stem cell research; she aims to show patient-specific differences in the drug sensitivity of cardiomyocytes. These studies are a new step towards personalized diagnosis and treatment of heart muscle disease.

Huttunen and Aalto-Setälä gave their public lectures in Finnish, although as usual the symposium was otherwise in English.

Academy Professors Seppo Ylä-Herttuala and Kari Alitalo were the top Finnish names at the 2016 symposium. They have received several international scientific awards for their ground-breaking work.

Ylä-Herttuala has researched gene therapy for heart and vascular diseases. One particular aspect of this is how to improve the flow of oxygen to muscles affected by hypoxia, or lack of oxygen. If the coronary arteries narrow, the heart muscle does not get enough oxygen, and this leads to angina pectoris symptoms. If the leg arteries narrow, this causes intermittent limping.

The remedy for this oxygen deficiency is to increase the number of blood vessels in the affected muscle tissue – either in the heart or the leg muscles. The focal point of Ylä-Herttuala's research is angiogenesis, that is, how to make small blood vessels form using gene therapy. This new technology can boost the activity of blood vessel growth factors, increasing the number of blood vessels in the muscles.

The issue is how to get more oxygen and blood to places where there is not enough of it.

In his research, Alitalo has also focused on the formation of new blood vessels using growth factors. He has also sought to explain how lymph vessels are formed, discovering a molecular mechanism that regulates lymph vessel formation.

This breakthrough has heralded a new era in lymph vessel research and treatment. Lymph vessels remove fluids and the toxins in them from tissue. If the lymph vessels do not work effectively, fluid starts to accumulate in the tissue and it swells. In practice, this occurs after breast cancer treatment, for example, if the lymph nodes in the armpit have to be removed. This causes the arms to swell. Alitalo's lymph vessel

Professor Shinya Yamanaka giving his public lecture in the Sigyn Hall in Turku on the first day of the Paavo Nurmi Symposium.

(Rami Nummelin, PNG)

growth factor could be used to encourage new lymph vessels to develop, which would reduce this swelling.

"The Paavo Nurmi Symposium is not actually a gathering of clinicians who are treating patients, but a forum for top-level basic research into heart disease. The symposium breaks down barriers between clinical sub-disciplines beautifully," said Petri Kovanen, Director of the Atherosclerosis Research Laboratory at the Wihuri Research Institute, in summer 2016.

Kovanen stressed that stem cell research has advanced rapidly and substantially in the last few years. He believes that in future, heart attack patients can have their damaged heart muscle 'reconstructed' using their own stem cells. This has been attempted for a long time, but the

Professor Kenneth Chien (front row), researcher at the Karolinska Institutet in Sweden, gave a public lecture at the Paavo Nurmi Symposium in Turku in 2016. (Rami Nummelin, PNG)

results so far have been modest. When the heart's original pumping power is restored, medicines are no longer needed to boost it. There is also no need for transplants.

"New technologies will bring about a revolution in treating heart patients," said Petri Kovanen.

During its five decades of history, the eighteen symposia organized by the Paavo Nurmi Foundation have been its most impressive achievement, and in some sense surely also the most rewarding. Although the world has shrunk in the last half century, and getting the best experts to Finland is not as exceptional as it was in the days when its work began, the Foundation has committed to continuing this tradition initiated by Paavo Nurmi, not just to benefit Finns' health, but the health of everyone.

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7–9 September 2011, Haikko Manor, Porvoo

XVIII Paavo Nurmi Symposium
"Future Technologies for Heart Diseases –
Basic Pathology, Diagnostics and Treatment"
31 August – 3 September 2016, Marina Congress Hotel, Turku

The 2016 Paavo Nurmi Symposium in Turku. (Rami Nummelin, PNG)

14.

Grants

The Paavo Nurmi Foundation awarded its first grants straight away, in the year it was established. Grants have been awarded almost every year. From 1968 to 2016, the Foundation has awarded at total of €4.8 million, based on the value-of-money converter for 2016 issued by Statistics Finland. The converter takes into account changes in inflation and the cost of living index.

Sum awarded each year, in Finnish marks:

1968	190,000 FIM	1977	95,000 FIM
1970	152,500 FIM	1978	90,000 FIM
1973	10,000 FIM	1979	70,000 FIM
1974	84,000 FIM	1980	95,000 FIM
1975	112,000 FIM	1981	125,000 FIM
1976	90,000 FIM	1982	186,000 FIM

1983	168,000 FIM	1992	490,000 FIM
1984	206,000 FIM	1993	750,000 FIM
1986	235,000 FIM	1994	500,000 FIM
1987	274,000 FIM	1997	300,000 FIM
1988	406,000 FIM	1998	500,000 FIM
1989	288,000 FIM	1999	500,000 FIM
1990	553,000 FIM	2000	500,000 FIM
1991	510,000 FIM	2001	550,000 FIM

From 2002, grants were awarded in euros:

2002	84,000 EUR	2010	107,500 EUR
2003	100,000 EUR	2011	103,000 EUR
2004	100,000 EUR	2012	97,000 EUR
2005	114,000 EUR	2013	155,100 EUR
2006	117,000 EUR	2014	150,000 EUR
2008	247,900 EUR	2015	150,000 EUR
2009	205,000 EUR	2016	201,000 EUR

Paavo Nurmi Foundation Awards

International Paavo Nurmi Foundation Award	
1. Prof. Petri Kovanen, MD, PhD	1997
2. Prof. Juhani Heikkilä, MD, PhD	1999
3. Prof. Kalevi Pyörälä, MD, PhD	2000
4. Prof. Jussi Huttunen, MD, PhD	2001
5. Prof. Gerald Berenson, MD, PhD	2013
Young Scientist Award	
1. Päivi Laitinen, PhD	2004
Incentive Award	
1. Adjunct Prof. Aapo Aro	2018

15.

Foundation Board Members

Paavo Nurmi	1968–1973	Chair 1968–1973
Lauri Kalaja	1968–1976	
Pentti Halonen	1968–1983	
Arne Hovitie	1968–1994	
Pekka Kare	1968–	
Matti Nurmi	1970–2013	Chair 1974–2013
Antti Louhija	1976–1995	
Vesa Manninen	1982–	Vice Chair 1997–
Antti Savolainen	1991–2005	
Kimmo Kontula	1995–2018	
Georg Ehrnrooth	2005–	
Mika Nurmi	2007–	Chair 2013–
Jukka Terhonen	2013–2017	
Tuula Entelä	2017–	
Juha Sinisalo	2018–	

Sources

Interviewees

Interviewed by Kalle Virtapohja, unless otherwise indicated:
Maija Anttila
Arne Hovitie (Antero Raevuori's material on Paavo Nurmi in the 1980s)
Pekka Kare
Kimmo Kontula
Petri Kovanen
Riitta Lassila
Antti Louhija
Petri Manninen
Vesa Manninen
Matti Nurmi
Mika Nurmi
Irma Rinne (Antero Raevuori's material on Paavo Nurmi in the 1980s)
Antti Savolainen
Katja Äijälä

Key written sources

- Minutes of the Paavo Nurmi Foundation.
- Juhani Peräsalo: Paavo Nurmen Säätiö. Historiikki 1968–78. Apurahojen saajat ja kansainväliset symposiumit 1968–87 Vammalan Kirjapaino Oy. (History of the Foundation's first decade and study of award recipients and international symposia in the first two decades; all Finnish titles listed here are available in Finnish only).
- The Paavo Nurmi Foundation. Twenty-Five Years 1968–1993.
- President Urho Kekkonen: Address by the President of the Republic at the Banquet of the Third International Paavo Nurmi Symposium held at Haikko Manor on September 19th, 1975 at 20:00 hrs.

Other literature

Lauri Autio: Salus, Wihurin tutkimuslaitos ja suomalaisen sydäntutkimuksen alkuvaiheet. 1990.

Lääkäri ja vapaa-aika. 2B/1988. Special issue in honour of Pentti Halonen.

G. Mannerheim: Muistelmat II osa. Otava 1952.

G. Mannerheim, translated by Count Eric Lewenhaupt: The Memoirs of Marshal Mannerheim, Cassell 1953.

Maarit Manninen: Säätiöt Suomessa. Cuporen julkaisuja 7/2005.

Kulttuuripoliittisen tutkimuksen edistämissäätiö 2005.

Veijo Meri: Suomen marsalkka C.G. Mannerheim. WSOY 1988. Suomen Lääkärit 1992. Suomen Lääkäriliitto, Forssa 1993.

Juhani Suomi: Liennytyksen akanvirrassa. Urho Kekkonen 1972–1976. Otava 1998.

Tauno Taajamaa: Mannerheim, Lempeäkatseinen legenda. Recallmed 1996.

Kalle Virtapohja: Mies josta tehtiin patsas. Paavo Nurmen ennätykset, maine ja perintö. Docendo 2017.

Paavo Nurmi Symposia

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