



Arrhenius in the Session Hall

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◀ **SVANTE ARRHENIUS.**
Portrait painted by David
Tägtström after Richard
Bergh's original.

The Annual Meeting of the Academy of Sciences. Predecessors, attached to the walls, gaze down on living members. The picture on the next spread is a visual representation that carries visible layers, and it does give an impression of order – both on the walls and on the chairs. The male dominance is clear, but women are also present in the photograph of the meeting. Behind the picture are further invisible layers, ones almost as orderly as the scene we see in the photograph. The picture represents a way of ordering scientific work and life, one which dealt with gender and divided up masculine and feminine competences.

We can access this gendered order by focusing on one of those present. Maria “Maja” Arrhenius is on the second row, fourth from the right, in a beautifully embroidered lace collar. If she were to look across the room to the right, she would see the crown prince, the future king Gustaf VI Adolf, and, furthest away, the explorer Sven Hedin (below a lampshade). If she were to move her gaze further right along the far wall, she would see a copy of Richard Bergh's oil portrait of her husband, physicist Svante Arrhenius. The painting hangs just to the right of the clock. The photograph was taken by Magnusson & Svensson Fotografiateljé, on one of the few occasions when the Annual Meeting was held in the Session Hall. Maja, a widow since 1927, was obviously invited to the Academy of Sciences despite her husband having passed away.

Maja and Svante were married on 6 September 1905 – he was a friend and colleague of her older brother, the physiology professor Jöns Johansson. When she married, Maja Arrhenius immediately became what could be

▶ **PHOTOGRAPH** from the Annual Meeting of
the Academy of Sciences, 30 March 1940.





called a “professoress”, which was a task and a life of privilege and responsibility. Maja was 34 years old when she married, and in a letter to her future husband she described the importance of marriage:

I had begun to accept that I could not hope for anything in my life other than resignation, but then you came and you said that *you* need me! To have someone to live for, someone to care for, you, whom I have so long known and respected. You, who are so good –! I am so happy.

She was a vicar’s daughter and had grown up in a vicarage in Dalarna. Just as in the home for which she was responsible as professoress, her parental home received visitors because of her father’s profession. Public office belonged entirely to men, regardless of whether they were vicars or professors. Both professions were male dominated, but they were also dependent on a family-based, female support. A wife was necessary in such homes with female-coded tasks; Maja was therefore familiar with the responsibilities and roles that accompanied her marriage.

When they married, Svante Arrhenius was a professor at Stockholm University College; he had previously been the university college’s vice-chancellor, and was the first Swedish scientist to receive the Nobel Prize, in 1903. He had become a member of the Academy of Sciences in 1901 and was increasingly a national scientific celebrity. He was one of the most influential researchers in Scandinavia, and had received numerous academic prizes and awards. The electrolytic dissociation theory – which was his most famous scientific contribution – dealt with substances with freely mobile ions that make solutions into electrical conductors, known as electrolytes.

It is no secret that the overwhelming majority of *visible* representatives of the natural sciences have been men. Looking at the list of the Academy of Sciences’ members is enough. Nor is it a secret that there have always been *invisible* partners around these visible men, and that women have often been important among these. Since at least the 17th century, scientific laboratories have been built around what is perceived as a rational division of labour, and time-consuming practical work has required assistants. For a long period, women have performed invisible and everyday tasks – historian of science Margaret Rossiter has captured this phenomenon by talking about “women’s work”. Science has an outside and an inside; public representations carry hidden structures – they hide teamwork processes, allocations of responsibility and hierarchies.

Science’s institutional structures have contributed to these divisions, and the Academy of Sciences is no exception. Actually, it is a place and institution that is central to understanding how the distribution of honours, memberships and influence have taken place. The Academy members in the picture of the Annual Meeting had power, visibility, influence and room for action.

The sciences have long been hierarchically segregated, something that has entailed that the closer one comes to the most powerful places of the academic structures, the fewer women there are. The number of women in leading positions in science remains low compared to the number of women further down the hierarchy.

Svante Arrhenius' work – including the electrolytic dissociation theory – was linked to his lifestyle, and the scientific life was just as much woven around a wife and children as around academies and universities. His colleagues and friends organised their lives similarly. The way private life was drawn into scientific activities also meant that some expectations had to be fulfilled. Arrhenius summarised this in his unpublished biography from 1927: it was “unnatural for me to continue living as a bachelor”. The professoress had been an important figure in the scientific arena since the early 1800s. Household management was among her most important tasks, as this often created a base for the husband's scientific activities. However, the professoress should also – along with household staff – take the practical responsibility for the children. The role of the mother was an important guarantee that the children would follow the paths defined by the patriarchal home. One interesting and important aspect of the home's function was also the way that knowledge work was often inherited. There are several academic dynasties in Sweden's scientific history from the 19th and 20th centuries; these included Ångström and Siegbahn, and also Arrhenius.

Scientific success may not have been entirely dependent on family life – scientists without families could also be successful – but choosing to live a life that others recognised was still connected to academic influence. Home and family reinforced the knowledge environment in which Svante Arrhenius lived. The marriage was a foundation for the scientific mission.

In a letter prior to their marriage, Svante and Maja made commitments to live “through each other”, they would be “one” and fulfil each other's wishes. Thinking of his life companion was, for Svante, the same as thinking of himself, because they had “grown together”. This partnership would bring opportunities to “completely penetrate each other's minds”. Svante emotionally explained that they were “made for each other”. He was also convinced that Maja would develop his “best traits”. Svante believed that he would come to be “much more with you than I could without you”.

Building a family was also of great importance in the international research community, of which the Arrheniuses were part. It was usual for wives to accompany their husbands on the trips abroad. These trips were to scientific congresses or universities at a time when internationalism was of increasing importance in science, both practically and ideologically. And Svante was an advocate for internationalist ideals, with periodically long trips on his schedule. He wanted Maja to accompany him but, just like other



PHOTOGRAPH of Maria (Maja) Arrhenius in her autumn years.

scientists' wives, she had to stay home when the children were small. The Arrheniuses had three children between 1909 and 1914: Sven, Ester and Anna-Lisa. So, despite women generally travelling less than their husbands, there was a great desire to take the family on trips. Arrhenius and his colleagues took photographs of their wife and children with them, showing them to foreign colleagues with pride.

This family ideal and socialising with colleagues' families supported and strengthened the research community, and a functioning family life was a noticeably international phenomenon. Private life was important, both as an idea and in practice for scientists from Sweden, Britain, Germany, the Netherlands, France and the USA. Even if the geographic distances were significant and the journeys long – on two occasions Svante travelled as far away as California – the lifestyle worked as a means of finding an international context and exchange. For Svante Arrhenius, this combination of family life and science was beneficial when he moved in the upper echelons of international academia. It contributed to opening up arenas and contexts in which the international elite lived and socialised – it contributed to creating power and respect.

The picture from the Academy of Sciences' Annual Meeting shows other layers: the tailcoat as a uniform. Clothes have been important for the Academy as an organisation in terms of cohesion, exclusivity and representation. In

the first half of the 20th century, a black tailcoat was the natural dress for members at their meetings. But the clothes also indicate how gender was something made and repeated to create stability in male and female roles. Language, gestures and clothes – the outer layer – are examples of the many everyday repetitions that kept ideas about gendered roles and tasks in place.

The Annual Meeting, the portraits on the walls and the photograph itself fit into this pattern. They are all layers that created and staged gender. In more everyday contexts, gender was produced through the men being head of the family and scientific authorities, while the women worked in and with the home. They were hostesses and caring mothers who contributed to a cultural norm – perhaps not always expressly stated but, despite this, understandable, obvious and natural for the people involved. This was how the representatives of science – both the men in the laboratory and the women at home – lived every day. The order of science is therefore available via the photograph of the Annual Meeting. But other, more elusive, layers are first apparent if we follow women like Maja Arrhenius – those who rarely talked, wrote or argued. They can open up for that which is not visible on the outside of science.

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This essay is based on Staffan Bergwik, *Kunskapens osynliga scener: Vetenskapshistorier 1900–1950* (Gothenburg/Stockholm, 2016) and on Bergwik, “An assemblage of science and home: The gendered lifestyle of Svante Arrhenius and early twentieth century physical chemistry”, *Isis*, vol. 105:2, 2014. For a discussion of “women’s work” in scientific history, see Margaret Rossiter, *Women Scientists in America: Struggles and Strategies to 1940* (Baltimore, 1984). For examples of research that discusses female scientists’ invisibility, see Susan Leigh Star, “The sociology of the invisible: The primacy of work in the writings of Anselm Strauss”, David R. Maines (ed.), *Social Organization and Social Process: Essays in Honor of Anselm Strauss* (New York, 1991). There are many good overviews of research in gender perspectives on scientific history, for example Londa Schiebinger, *Has Feminism Changed Science?* (Cambridge, MA, 1999); Evelyn Fox Keller, “The origin, history, and politics of the subject called ‘gender and science’: A first person account”, Sheila Jasanoff et al. (eds.), *Handbook of Science and Technology Studies* (Thousand Oaks, 1995); Sally Gregory Kohlstedt & Helen Longino, “The women, gender and science question: What do research on women in science and research on gender and science have to do with each other?”, *Osiris*, vol. 12, 1997; Boel Berner, *Ifrågasättanden: Forskning om genus, teknik och naturvetenskap* (Linköping, 2004). Quotes from Svante and Maja come from their preserved correspondence, found in the Svante Arrhenius archive, B3:1, the Center for History of Science, the Royal Swedish Academy of Sciences. I have been given access to letters from Maja to Svante thanks to the Arrheniuses’ granddaughter, Karin Caldwell. Svante Arrhenius’ unpublished autobiography, “Levnadsrön”, is in his archive, F4:1.