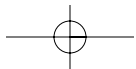
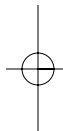
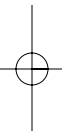
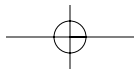
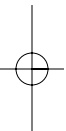




Einstein's Nobel Prize





Einstein's Nobel Prize

A Glimpse Behind Closed Doors

THE ARCHIVAL EVIDENCE

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Preface

This book has its origins in the centennial celebrations of Albert Einstein's Miraculous Year. With 2005 declared the International Year of Physics by the General Assembly of the UNO, there has been a flurry of activities in many countries. Quite a number of new books on Einstein, his life and his work, have already been published. New light, for example, has been shed on his life and contacts in Bern 1902–1909. The same is true of his critique of Swiss authorities for their unwillingness in the 1930s to intervene on his behalf against Nazi seizure of his property in Berlin after he had transferred to Princeton in the USA. His role as a symbol and icon of our time, photographic images and how he was portrayed in the media, as well as the bearing his physics had on early 20th-century art and culture, have also been explored further in a number of anthologies. Special articles have appeared in scientific periodicals and the popular media to explain the significance of his revolutionary ideas for various fields of science in present-day research—cosmology, black holes, the Big Bang, gravitational waves, dark matter, and possibly the quest for a unified picture of the physical world involving superstring theory and quantum dimensions.

Films, TV-programs and plays about Einstein have caught the public imagination, not only because of the science but also due to the interest in his tangled personal life and radical political views. The portrait emerging from the love letters exchanged between Albert Einstein and Mileva Marić—long buried in the archives and shrouded in secrecy—continues to trigger debate concerning the man's relationship to his first wife. There is now a feminist discourse with some hard questions about her role in the early creative years and her later fate as the forgotten Mrs. Einstein.

Popular events and exhibitions have been set up to attract children and youth with hands-on experiments involving jiggling particles in Brownian motion, fascinating photoelectric devices, lasers, simulations of curved space-time manifolds, light “bending” near massy bodies, and of corrections in Global Positioning System satellites using Einsteinian relativity principles. Museums in

major cities—Berlin, Bern, Munich, Potsdam, London, New York, Stockholm, etc.—have arranged special Einstein exhibits, each one different from the other and focusing on particular aspects of the man’s life and scientific achievements.

So why yet another Einstein book? Is there more to add to the story that has already been told?

The answer is yes. The archival record of how and why he got the Nobel prize in physics is far from exhausted. Some key documents in the Nobel archives in Stockholm in particular deserve further attention. This became clear during the planning phases of the exhibition *Albert Einstein “för hans upptäckt av . . .”* (Albert Einstein “for his discovery of . . .”) that opened at the Nobel Museum in Stockholm in the middle of May 2005. The exhibit weaves together images, artifacts, and a film in an innovative architectural space-time warp to tell the story of his physics and the twisting road to a Nobel prize in that field. In the course of discussions in a reference group of which I was a member, physics professor and Vice Director of the Museum Anders Bárány came up with the idea that I might want to write a brochure in connection with the exhibit. The point of departure would be some of the documents housed at the Royal Swedish Academy of Sciences and its Center for History of Science (directed by the historian of science, Professor Tore Frängsmyr). This fitted in well with an earlier study I had done regarding Einstein’s visit (in 1923) to Sweden.

My earlier study (see below) exists as an introduction to a Swedish translation of Einstein’s popular book of 1917 on the special and general theories of relativity. Here was now an opportunity to broaden that study and update my earlier synthesis of a number of findings on the man’s impact on Swedish physics, philosophy and culture as reported by newer Scandinavian scholarship in the history of science. Elisabeth Crawford and her colleagues’ extensive studies of the “Nobel population” are well known. Some of the newer scholarship has attracted international attention through the anthology, *Center on the Periphery. Historical Aspects of 20th-Century Swedish Physics* (edited by Svante Lindqvist, 1993), or via the *Uppsala Newsletter: History of Science*. Marc Robert Friedman’s provocative book, *The Politics of Excellence. Behind the Nobel Prize in Science*, has an interesting chapter on Einstein and the Nobel prize, summarizing some of Friedman’s earlier findings (see my review, “Lifting the Curtain on the Nobels,” *Nature*, vol. 414 (13 Dec 2001, pp. 690–691). Studies by prominent Danish historians of science dealing with Niels Bohr and aspects of Einstein’s work are also relevant.

Other parts of the newer scholarship exist in books and learned papers hitherto only published in Swedish and therefore insufficiently known outside Scandinavia. Some have dwelt on particular events in the history of late 19th-century physics (for example, the Uppsala school of experimental physics) and

early 20th-century science (the advent of relativity, atomic physics and internationalization in Sweden). Pertinent among others are studies on particular individuals such as Carl Wilhelm Oseen, Manne Siegbahn and Oskar Klein. Swedish scientists' perceptions of Einstein's theories in physics, as well as a long wave of repercussions in Swedish philosophy have received special attention. The historical role and significance of the Scandinavian Association for Advancement of Science and its periodic conferences, including Göteborg 1923, has also been analyzed. In addition the literature includes studies of what is nowadays called the "public understanding of science," for example, Einstein's role in the 1920s as an icon in the media and culture in Sweden and Scandinavia more broadly speaking. More information on some of the aforementioned scholarship will be found in the footnotes and bibliography of the present book.

That so many Scandinavian historians of ideas and science have pored over documentation in the Swedish archival record, among others the Nobel archives, has been very helpful for my own purposes. Still, I found that more could be said about Einstein's Nobel prize if one systematically and in considerable detail went through the whole span of nominations for a prize for Einstein from 1910 to 1922, while at the same time availing oneself of the historical perspectives, analysis and reflections on a broader period set forth by authors such as Finn Aaserud, Elisabeth Crawford, Nils Eriksson, Robert Marc Friedman, Suzanne Gieser, Karl Grandin, Anders Houlitz, Kjell Jonsson, Thomas Kaiserfeld, Helge Kragh, Thord Silverbark, Carl-Olov Stawström, and Sven Widmalm. Silverbark and Stawström in particular have shown how, historically, there was a striking resistance to and a lag in the uptake of Einstein's ideas in Swedish philosophy. They and several others have also pointed to the implications of the strong bonds that existed, respectively, between Sweden and Germany in the spheres of science and culture during the early 20th-century.

Swedish scientists often wrote in German, in the same way that English now is the preferred *lingua franca*. In my own earlier work, I have referred to this circumstance to explain in part why a Swedish translation of Einstein's popular tract of 1917 appeared so much later than translations into other languages. It was not until the late 1980s that a small publisher (Daidalos books, Göteborg) took the initiative to produce the first Swedish translation of *Über die spezielle und die allgemeine Relativitätstheorie, Gemeinverständlich*. It was for this translation, which appeared in 1988, that I wrote a lengthy introduction, drawing upon secondary literature by historians of ideas and science in Sweden, plus my own primary spadework to piece together a picture of Einstein's visit to Sweden and Swedish media coverage of this as well as some related events.

Later, while attending a special session of the American Association of Advancement of Science (AAAS) conference in New Orleans in 1990, I learned about the tension between Einstein's first two loves, physics and Mileva Marić,

an uneven contest in which the former won out. Afterwards I wrote some further articles in Swedish, among them a short piece entitled “Was Mrs. Einstein the genius?”

The idea of producing a brochure in connection with the Einstein exhibit in Stockholm obviously provided me with an opportunity to return to some topical questions. The plan was to write a brief contextual history of how Einstein finally got his Nobel prize. The point of departure was pertinent documentation in the Nobel Archive at the Royal Swedish Academy of Sciences. A central task was to find out more about who nominated him for the physics prize, why, for which of his works, who were the persons that assessed his merits, and what sorts of reasoning led the Nobel Committee for Physics to reject his candidacy for many years running, and what happened during that dramatic turn of events that led to him finally being recognized for his “law of the photoelectric effect” in 1922, and thereby receiving the prize for 1921.

It soon became evident that nowhere could one find a detailed study that considered all the persons who had nominated Einstein and what motivations they had given. Nor had anyone with an eye to the dual backdrop of Einstein’s intellectual struggles and a broader historical context (scientific as well as political) consciously applied the science studies principle of symmetry (remaining strictly impartial) when sifting through the Nobel Committee’s various lines of argumentation. As time went on, the plan of a brief brochure simply burst at its seams and my project turned into a full-length book.

So here is what you now have before you, a book that tells the tale of how Albert Einstein after many years of waiting finally got the Nobel physics prize for 1921, awarded in 1922. The story is rich in drama, both scientific and personal. As already indicated, some of it has been told before, but no one has hitherto gone into the archives to map *in detail* who nominated Einstein for the Nobel prize, for what parts of his work, who were the persons who assessed his merits, and what sorts of reasoning swayed the Nobel Committee for Physics.

It was actually Niels Bohr who received the prize for 1922. In the report adopted that year, the Nobel Committee drew a strong connection between the two men’s works. This was in many ways a strategically important move. Einstein’s research from 1905 onward on the photoelectric effect and related phenomena, a part of quantum physics, was counted while his theories of relativity were explicitly kept outside the reckoning. On the basis of a penetrating study of documents in the Nobel archive at the Royal Swedish Academy of Sciences in Stockholm, I have been able to review the 60 nominations Einstein received from 1910 to 1922 and analyze the arguments against relativity theory as well as the reasons for the Committee’s skepticism.

The dramatic turn of attention to the work on the photoelectric effect and the reasoning behind this decision are probed at considerable length. Twists in Einstein’s life as well as in the Committee’s deliberations and background fac-

tors behind key nominations, are explored in historical perspective. Einstein's early years, the significance of his time as patent clerk, his life as a Berlin professor, several facets in the history of science, and changes in the European political scene are also taken up.

In its concluding chapters, the present book discusses how, in the wake of the First World War and the cold war in science that followed, Einstein's Nobel prize and his visit to Göteborg in Sweden 1923 also took on symbolic meanings that extended beyond science into the realms of philosophy, politics and culture.

Apart from mention of other Scandinavian scholars upon whose work I have been able to draw (see above), more immediate acknowledgments are due a number of institutions and persons. First of all, I want to record my thanks to the Royal Swedish Academy of Sciences for permission to use pertinent documentation in the Nobel archives. Dr. Karl Grandin, Assistant Director at the Center for History of Science at the Academy helped me in this, and I have found his own book on Carl Wilhelm Oseen an important fount of information on Oseen's role as the new Nobel Committee member in the year 1922. I am also grateful to Anne Miche de Malleray, Archivist at the History of Science Center for her assistance when needed.

When the brochure had burst its seams, Anders Barany encouraged me to continue. All along I have enjoyed the good fortune of being able to consult him on various points, tapping into his encyclopaedic knowledge of Who's Who in the world of Nobel Laureates and what they have done. He also generously found time to read through my manuscript at several stages, pointing to a number of discrepancies and sometimes alerting me to further information regarding Einstein's large network of scientific contacts. In the course of our interchanges I was also made increasingly aware of certain intricacies in the Nobel nomination process and the various phases in the assessment process up to and including the final decision by the Academy of Sciences in plenum.

The rules for nominations, for example, have a bearing on who in any year may or may not be a potential nominator to bring forward the names of candidates for the Nobel prize. Consequently, apart from the population of Einstein nominators and the clustering or patterns of networks one finds in it, there also exists another group, a virtual population of potential nominators who seldom or never get counted because during particular years they were not eligible to nominate Nobel prize candidates. Here we have a factor that may motivate further studies, for example using network analysis and case studies that go deeper than I have been able to reach. How fruitful the outcome of such further studies would be is difficult to say. Nevertheless I am grateful for the pointers brought to my attention during the course of my efforts, and readily concede that all shortcomings remaining in the present text of course fall on my lot.

I am also indebted to Fredrik Skog, Curator at the Nobel Museum. Initially he helped me lay hands on substantial parts of the archival material and later he expertly took charge of getting together and shaping up the illustrational material in digital form for the book. Professor Svante Lindqvist, Director of the Nobel Museum in Stockholm, came in at a crucial point with final encouragement and put me in touch with Neale Watson the publisher. Since then Neale Watson and I have had continual contact and brainstormed along the way to successively fine-tune different aspects of the production. This has been a smooth, pleasant and efficient process.

Credit for the cover picture goes to Jonas Förare, Science Editor and Press Officer at the Royal Swedish Academy of Sciences. The slightly open door evokes the subtitle, "A Glimpse Behind Closed Doors." The picture, taken inside the Academy, is of the door whereby one enters the room in which the plenary session of the 9th of November 1922 was held when the decision was finally taken to award a prize to Einstein.

Finally, I gratefully acknowledge that grants-in-aid to cover the printing of the book have been provided by the Sven and Dagmar Salén Foundation, the Foundation in the Memory of Lars Hierta, and Göteborg University (John Karlsson Donation).

Göteborg, November 2005

Aant Elzinga