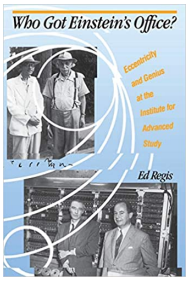
Who Got Einstein's Office? Addison Wesley, 1987 & Basic Books, 1988 (336 p.), isbn: 978-0201122787. **Wie zit er op Einstein's stoel?**, Uitgeverij Contact, 1989 (319 p.) by *Ed Regis*.







Ed Regis

Those who read these reviews regularly will know that I love to visit flee markets where I can occasionally find some long forgotten book that is not directly available in usual bookshops or websites. There I found the Dutch version of Ed Regis' book from 1987: *Who got Einstein's Office? Eccentricity and Genius at the Institute for Advanced Study.*

Ed Regis is a science writer and in this book he sketches the history of the *Institute for Advances Studies* (IAS) in Princeton founded in 1930 by Abraham Flexner with money from the couple Louis and Caroline Bamberger. The original idea was to attract the best scientists worldwide and let them investigate science for its own sake. With the climate in Europe in those days it triggered a brain drain of the best scientists, and Einstein was one of the first and the best known, who acted as a magnet for geniuses like Kurt Gödel, Hermann Weyl, John von Neumann, Robert Oppenheimer, and others. So we learn in this book about the way the institute evolved and how its inhabitants interacted, and to some extent their main achievements, i.e., what they were famous for, is explained in a readable form.

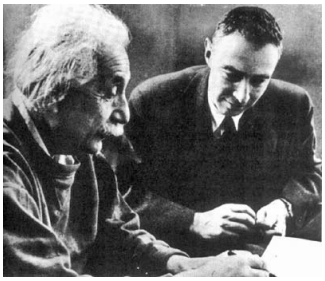


L. & C. Bamberger Fuld





A. Flexner



Einstein & Oppenheimer



H. Weyl

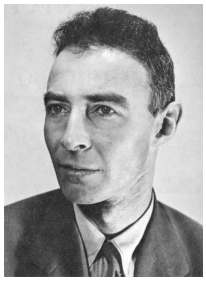
Einstein's and Gödel's work is known well enough and fits the original idea of the ISA. Fields Medal winner John Milnor, studied dynamical systems and visualisation as fractal images links with Mandelbrot, but the latter didn't seem to have the appropriate credentials to be accepted. Next came von Neumann. He was still considered a mathematician, but he introduced the idea of building a computing machine, which was considered too applied, and he was banned to the cellar of the institute, where he worked, in collaboration with nearby universities. But he also contributed to the Manhattan project (developing the atomic bomb), quantum mechanics, informatics, and several mathematical topics. He always dressed up with a tie and a suit.

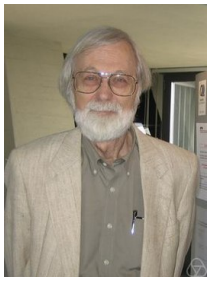
When Oppenheimer (Oppie), the 'father of the atomic bomb', became director of the ISA after WW II, it was only after a vote, and that was not unanimous. Eventually the choice was between Oppenheimer and Wolfgang Pauli. Einstein and Weyl were asked to make an evaluation who preferred theory above experimental work, so, they proposed Pauli. But just like Feynman and Schwinger, Pauli did not accept a permanent position at the ASI and so Oppie became the top choice, and he brought a new wind to the institute. Not only bombs but also a laboratory, was considered to be too applied. Cosmology, astrophysics, particle and quantum physics entered the institute with colorful characters such as Freeman Dyson. Directors stayed in office about 10 years, but Oppenheim was director from 1947 to 1966.

Carl Kaysen was the successor of Oppenheimer as the director. He collected money to add new buildings on the campus of the institute. He however proposed a permanent position to Robert Bellah, a sociologist, which was unheard at the ISA and raised some mutiny of the mathematics

faculty. The astrophysics faculty attracted Stephen Wolfram, whose divided interest was particle physcs and cosmology. He started a study of cellular automata, which he considered to be systems that governed with a kind of self learning strategic rules could explain why and how the cosmos evolved as it did. He wanted to study complexity that emerged from simple rules. The *Game of Life* designed by John Conway in 1970, that at some time was immensely popular, is a well known example. Wolfram also designed, and commercialized a formula manipulating system (which we all know as Mathematica). Edward Witten was another genius that joined the ISA. As theoretical physicist he worked on string theory, quantum gravity, super symmetric quantum fields. He was the first physicist who won the Fields Medal in 1990.


K. Gödel


R. Oppenheimer


J. Milnor


J. von Neumann


S. Wolfram


E. Witten

Besides all these individual characters and their idiosyncracies, the reader is also introduced to the theory that they developed. There is even an appendix with BASIC programs to generate a Mandelbrot set and a cellular automaton, originally written by Milnor. Of course, one is only informed up to the situation as it was during the mid 1980's when the book was written. Some of the story is told in the form of an interview that Regis had with some of the scientists and the world has drastically changed since then.

The last chapter is an epilogue which is a reflection on the sense and nonsense of having an institute like the IAS. If one is only appointed as a professor after winning a Nobel Prize, or Fields Medal or any other major recognition, then it is doubtful that such people will produce another equivalent result when they are paid to do just research during the whole day without any distraction. The IAS does not provide PhD's. It can still have some meaning if contact with invited young scientists is intense, so that the latter have time to prepare a PhD that they will obtain form another university. Another condition to make the institute successful is that administration and management is not the concern of the inhabitant scientists. Geniuses tend to have independent minds that do not easily submit to rules. The epilogue gives also a curious account about documents that were prepared about the history of the IAS but that were anxiously kept in a safe. A 800 pages document was prepared by Beatrice Stern who had access to the archives. She covered the period 1930-1950. However, it is locked away and Regis suggests it is because it could reveal too much of the disagreements between the members. For the 100th birthday of Einstein, a similar smaller scale project was started. W.G. Wing was appointed for that but when he arrived at the computer project of the IAS when the disagreement among IAS members raised to a peak, the project was stopped. So, Regis actually produced here, the first history book about the IAS.

The current IAS in Princeton has a permanent staff of 27 professors and many visiting scientists. The current director David Nirenberg is the successor of Robbert Dijkgraaf (2012-2022). The ideas of the IAS were imitated worldwide and one can now find IAS's, some local, some national, in many countries. Since 2020 also Leuven has its own *Leuven Institute for Advanced Studies* (LIAS).

Adhemar Bultheel