

A documentary on Nobel laureate Eric Kandel

The Tale of the Snail

An unorthodox, but entertaining, documentary acquaints the viewer with the brain researcher Eric Kandel. While the film only provides an outline of the science behind its main character, the laboratory scenes with Kandel's co-workers are amazingly inspirational.

Eric Richard Kandel, the well-known US psychiatrist and neuroscientist, is not without controversy – especially after the native-born Austrian was awarded a Nobel Prize in 2000 for his research on the physiological basis of memory storage in neurons. Some rivalling brain researchers instantly criticised that Kandel hadn't even made a single extraordinary discovery, so, why reward him with a Nobel Prize? In addition, Kandel's intellectual vicinity to psychoanalyst Sigmund Freud was often considered as suspect.

Whether you agree with that, or not, there is no doubt that Kandel was significantly involved in many important scientific findings. Kandel was one of the first people to show that learning involves a change in how nerve cells talk to each other (later referred to as "synaptic communication"); he showed that long-term memory involves alterations in the expression of genes; he found and termed the ubiquitous protein CREB1 that binds a certain DNA sequence to stimulate transcription; and he showed that long term memory involves the growth of new synaptic connections.

In addition to Kandel's scientific achievements, many admire his personality, in particular his sanguineness and his ingenious style to impart complex knowledge. A Spanish postdoc once praised the professor from whom he had learned so much, he especially wanted to emphasise that being able to communicate an idea is as important as the idea itself. "Eric [Kandel]", the postdoc added, "has a 300 percent ability to communicate".

Every brain is permanently altering

The praise described above, really happened at a farewell party at Columbia University. It's also a scene shown in the biographical film *In Search of Memory*, whose title is adopted from Kandel's readable auto-

biography of the same title (Norton Books, New York, 2006). The documentary on the famous neuro-researcher provides a fascinating, but sketchy, insight into a scientist's daily life, as well as an emotional review of Kandel's personal life story.

The cinematic documentary on his life and research compares well with Kandel's written stroke of genius. Shot by the German documentarian Petra Seeger taking more than three years between 2006 and

bring us closer to the fascinating personality of Eric Kandel, to the way a scientist and his co-workers think. She also wanted to show that science can be extremely thrilling. The film's central theme is learning, and the good news is that every human brain is altering permanently as it learns, implying that everyone permanently has the chance to alter oneself.

Several parallel plots

Similar to Kandel's own book, Seeger constructed two parallel plots – one is about Kandel himself, the other is about his neuroscience. Throughout the film these two plots interweave, but never get tangled up. Kandel's childhood in the Vienna of the 1930s is embedded into the first plot and filmed in antiquated monochrome with professional actors. At this time, he is an eight year old Jewish boy, experiencing how his family is discriminated against and persecuted after his homeland Austria had been annexed to the German Third Reich in 1938.

These scenes alternate with ones of Kandel's family of today – grandfather Eric, with his wife Denise (she is also a scientist), their children and grandchildren in tow – how they walk through today's Vienna and look for the places Kandel remembers from his childhood, taking a journey into the past. Here and there, these sequences drift into the slapstick, for example when a venerable and well-dressed Kandel gropes across obscure backyards and stairways, looking for a particular front door or a store he remembers from his past. While the film is mainly in English, we hear the Austrian-born Kandel speaking here and there in his likeable Austro-German accent.

There are scores of enjoyable anecdotes, such as when the 79-year-old Kandel shows his 1930s' domicile to his family, whereupon his granddaughter is wondering where the bathroom is.



Photo: Columbia University



Photo: Dietmar Temps

Eric Kandel with his wife Denise, showing characteristic behaviour.

2008, the film offers a plain introduction to the basics and methods of memory research and neuroscience. Admittedly, the scientific aspects remain very superficial, rarely rising above general knowledge on synapses, axons, action potentials and neurotransmitters.

That's okay, as Seeger didn't want to drum the intricacies of brain biology into the viewer's heads. Instead of producing an uninspiring school lesson, she wanted to

“Where did you shower”?, she asks her grandfather. – “We didn’t have a shower,” Kandel answers. – “And how did you get clean”!?, she wonders.

Kandel’s laconic answer: “We washed ourselves”.

Humorous streak

This isn’t the only scene where it’s obvious that the Nobel laureate definitely has a healthy sense of humour. When getting into the car, for example, Kandel makes jokes with the driver; when talking about his career, Kandel is permanently making jokes about himself, and throughout the whole film we hear his very distinctive, goat-like bleating but always life-affirming laughter.

Or take this moment in 1955, when young and high-flying student Eric Kandel told his puzzled professor that he wanted to find where the id, ego and superego are located in the human brain (whereupon his professor, the prominent neuroresearcher Harry Grundfest, told him to be less cocky and to accept, “if you want to understand how the brain works, my son, you have to study it one cell at a time”).

Maybe the most comical scene in the whole film, however, occurs in Brooklyn when Kandel is looking for people who can remember his father’s erstwhile toy shop and encounters an aged Afro-American, sitting around in a sleazy chair at the roadside. Surprisingly, he exhibits the same sense of humour as Kandel himself, whereupon both become entangled in a quick-witted and playful debate that should bring a smile to even the most ill-humoured viewer’s face.

Even if the film isn’t busy imparting profound knowledge, we learn a lot about the day-to-day of academic business. We



learn the reasons why Kandel chose a primitive marine mollusc, *Aplysia californica*, to unravel the secrets of learning and memory and we become acquainted with the

extremely motivated young researchers in Kandel’s laboratories with their personal research topics and thrilling results and conclusions.

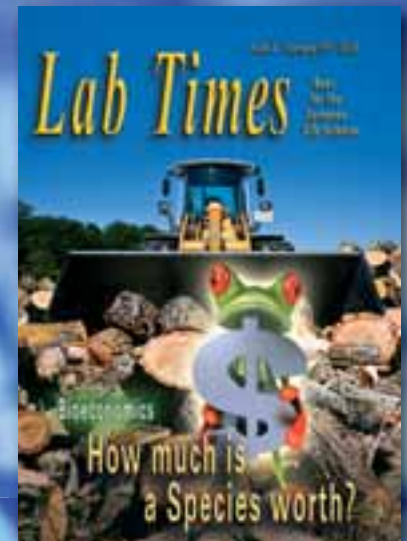
It’s not for the money

Unexpectedly, these last-mentioned scenes are the most touching: when Kandel’s young staff get this dreamy, reflective expression in their eyes, explaining, “It’s not for the money. You cannot make very much money in science. You’re here because of the passion. And everywhere where passion is involved, things are going to get interesting.”

If anyone can make outsiders understand why science can be such an absorbing and appealing activity, then it’s these young brain researchers from the Center for Neurobiology and Behavior at Columbia University. WEANÉE KIMBLEWOOD

Petra Seeger, *In Search of Memory. The Neuroscientist Eric Kandel*. DVD, 95 min (+ 25 min bonus). Absolut Medien, 2010, €15.95. – To be released as a special edition double DVD in May 2010, an international version of *In Search of Memory* is to contain subtitles in English, Hebrew, and probably other European languages, such as Italian and Spanish.

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