

Memories revisited

In Search of Memory: The Neuroscientist Eric Kandel

Film directed by Petra Seeger

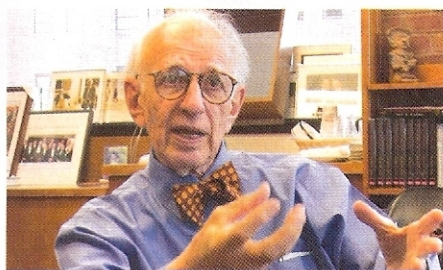
Showing in Austria.

German filmmaker Petra Seeger met neuroscientist Eric Kandel by chance in Berlin two years ago, and was enthralled by his research and life story. An Austrian Jew forced to flee the Nazis in 1939, Kandel (pictured) is still coming to terms with his traumatic past. *In Search of Memory*, Seeger's 95-minute documentary of the mischievous 79 year old, premiered on 26 May in Vienna, Kandel's childhood home.

In 2000, Kandel shared the Nobel Prize for Physiology or Medicine for his work on how neurons lay down memories. The film weaves Kandel's recollections and the science of learning and memory. Seeger accompanies him to Vienna to seek out his family's old apartment, his father's toy shop and other poignant places that he has avoided for fear of stirring up pain. Seeger's camera follows Kandel in mid close-up. Re-enactments of his childhood are mixed with archive footage from 1930s Austria and contemporary scenes shot in his laboratory at Columbia University in New York.

Kandel recalls on screen the jubilant welcome of Hitler's troops as they marched into Vienna in March 1938. The following November, a few days after his ninth birthday, he witnessed the horrors of Kristallnacht, when rioters destroyed synagogues and Jewish premises. Instructed to leave their house, his family returned two weeks later to find that everything had been stripped from it, even his birthday toys. He recalls the collusion of many Austrians with the Nazis and the lack of support, or even sympathy, from former non-Jewish friends.

Those enduring memories fuelled Kandel's desire to understand the biological basis of memory. His approach was unfashionably reductionist. He chose as his model organism the sea slug *Aplysia californica*, which has just a few large nerve cells and a robust reflex — it withdraws its gills in response to stimulation. Kandel showed that the sea slug can learn to modify this reflex when repeatedly stimulated, and that the change is caused by strengthening



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of the synapses, the regions where neurons connect with each other.

Seeger mirrors that reductionist approach in her filming. She eschews high-tech animations, relying on Kandel to explain his science with only a flip chart and a large plastic model of the brain. His lab seems busy and his colleagues look happy: young researchers relate their own discoveries with moving enthusiasm. Scientists come across as vibrant people with pasts, sensitivities and futures — with stories to tell.

The naive viewer may not take home many scientific details, but the documentary conveys the breadth of neuroscience and the scientific process. It describes different types of memory that arise in distinct parts of the brain, and the fundamental cellular process of synapse strengthening. Kandel's story shows that to reach the truth, you sometimes need to go back to basics before reconstructing the big picture.

Kandel laughs a lot as he confronts his past. In one memorable sequence in New York, he asks an old man seated on a chair in the street if he remembers his father's store. "What's your problem?" the old man barks. But within a minute they banter about their age, and laugh so infectiously that the audience laughs too. In another scene, Kandel's eyes brim with tears.

The strength and weakness of *In Search of Memory*, named after Kandel's book of the same name, is that it is uncritical, a love affair with this petite, demanding genius. The film manipulates its viewers into adoration. Scientists outside Kandel's lab barely get a mention. But the warmth of the film, together with the political and scientific importance of the subject, more than compensate. ■

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