

FILM

Eternal Sunshine of the Spotless Mind

Focus Features

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In bed, on the beach, in the snow: Kate Winslet and Jim Carrey revisit a fading memory of their early romance.

Memory loss has been a stock movie plot device since the release of 1940s melodramas like *Random Harvest*, but lately it seems to be everywhere: in mysteries (*Memento*), in thrillers (*Paycheck*), and even in comedies (*50 First Dates*). The ingenious film *Eternal Sunshine of the Spotless Mind* gives the old concept a new twist, envisioning a world in which science has found a way to let people erase painful memories. Clementine Kruczynski (played by Kate Winslet) and Joel Barish (Jim Carrey) are a couple whose lives are transformed when they realize they have the option of deleting their troubled time together. With the aid of a dubious clinic named Lacuna Inc. and a colander-like contraption wired to the head, they wipe out the traces of their tumultuous relationship.

Eternal Sunshine's premise sounds like ripe science fiction, but the underlying issues are actually well grounded in current research. The immediate point of reference is Prozac and related drugs that alleviate depression and restore the true self—or destroy it, depending on your perspective. Even memory erasure is not so improbable as many viewers may think. A number of brain researchers are already working on methods to blunt or eliminate certain types of recollections. Larry Cahill of the University of California at Irvine, for instance, has found that drugs called beta-blockers can prevent subjects from forming the heightened memories associated with traumatic events. Such experiments have prompted the President's Council on Bioethics to warn: "Until recently, the prospect of altering our remembrance of things past—and doing so with precision, getting the better memories we desire without compromising memory as a whole—was mere fantasy. But in the near future that may not be so."

For those who have not bothered to read the council's report—that would be most of the country, presumably—*Eternal Sunshine* offers an entertaining yet intellectually stimulating preview of these possibilities. Kate Winslet's emotionally naked performance, in particular, illustrates the frightening potential of mind manipulation. Director Michel Gondry and screenwriter Charlie Kaufman treat the proceedings with a realism that encourages the audience to empathize with the characters' core medical and philosophical quandary: Is taking control of memory an affront to our humanity or the ultimate expression of free will? —Corey S. Powell

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THE BOOK NOBODY READ: Chasing the Revolutions of Nicolaus Copernicus

Owen Gingerich

Walker & Company, \$25

In *The Sleepwalkers*, published in 1959, Arthur Koestler claimed that none of Nicolaus Copernicus's contemporaries had actually read his 1543 masterpiece *De Revolutionibus Orbium Coelestium* (On the Revolutions of the Heavenly Spheres), which posited that Earth and the planets orbit the sun. Astronomer Owen Gingerich spent 30 years on a near-obsessive quest to track down copies of *De Revolutionibus* that were once owned by Galileo, Kepler, and others and proves Koestler wrong. For example, in the margins of one copy, the 16th-century astronomer Thomas Digges wrote "the common opinion errs," thus enrolling him among readers who accepted the heliocentric doctrine.

—Maia Weinstock

GIZMOS

Enigma-E Electronic Enigma Machine

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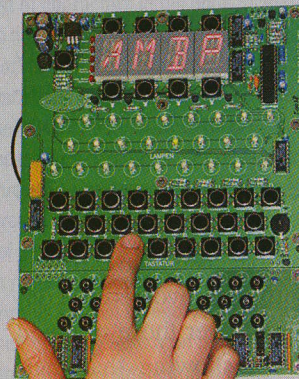
The most remarkable aspect of the Enigma—the code used by the German military to encrypt radio messages during World War II—was that it was both difficult to break and easy to use, even by someone with no knowledge of cryptography. Use of the code was facilitated by cleverly designed Enigma machines equipped with replaceable rotating wheels. To encode a message, an operator would type words in German into a 26-letter keyboard. Each press of a key sent an electrical signal through an ever-changing maze of wires and wheels that at its end

lit up a bulb indicating a different encrypted letter. To alter the code—which at the height of the war was done every day—encoders and the decoders to whom the messages were sent reconfigured the wheels according to a predetermined schedule. To decipher the message, the recipient would simply type it back into his own machine.

Enigma machines are today very expensive and exceptionally rare. One of the few places where they are on display is Bletchley Park, the British site where mathematician Alan Turing inspired the creation of an electromechanical "Bombe" to crack the code—a feat that probably shortened the war by two years.

Press a key on the Enigma-E and a yellow bulb shows the coded letter.

After seeing a vintage Enigma machine in action there, Dutch electronic engineers Marc Simons and Paul Reuvers decided to design a replica. The result is the Enigma-E, a digital, electronic version of the device that can be purchased and assembled at home with the aid of



a soldering iron. The Enigma-E retains the original's keyboard and lightbulb display, but the wheels are simulated on computer chips.

What to do with the Enigma-E? Well, try deciphering the code for such messages as "Führung und Truppe müssen von dieser Ehrenpflicht durchdrungen sein" ("Commanders and troops must be imbued with the honor of this duty"), which can be found in the accompanying manual. Or create your own codebooks so that you and a friend can use your Enigma machines to keep messages private. Be warned, though: A virtual Turing Bombe is available online at www.codesandciphers.org.uk/anoraks/index.htm—so your secrets, like those of the German army, may not remain safe for long.

—William Jacobs