

▶ human civilizations arose. And some have suggested that he was the model for the fictional archaeologist Indiana Jones, who studied at the University of Chicago. In 1931, Breasted's portrait featured on the cover of *Time* magazine.

Breasted's weakness as a historian was his religious motivation, as Abt clearly, if tactfully, reveals. Although hardly a Christian fundamentalist, Breasted saw Egypt as "an early example of mankind's potential but, as it had not been Christian ... bound to fail", according to a single dismissive sentence in Romer's book.

Romer's book is not without weaknesses of its own. His stated intent is "first, to provide a guide through the intellectual quagmire that modern 'ancient Egypt' has become, and also, by careful observation, to set some of the things the ancient people made back into their original realities." Although successful in his second aim, he is perhaps less so in his first.

It is not easy to enliven prehistory while simultaneously respecting limited archaeological evidence and avoiding novelistic pitfalls. But Romer manages it: his first chapter is a sparkling evocation of how, under the influence of the River Nile, Egypt's earliest inhabitants turned from hunter-gathering to farming around Lake Faiyum, in a depression in the Sahara. He shows how flint arrowheads found at Faiyum became less efficient, yet finer, over time, showing the growth of aesthetic feeling that would result in intricate weaving, elegant pots, beautiful paintings, expressive hieroglyphs and gigantic pyramids.

However, as a guide through the "intellectual quagmire", the book is sometimes tendentious in its anxiety to avoid conventional views on the enigmatic origin of the hieroglyphs. On aesthetic grounds, Romer assumes that the Egyptians borrowed from the writing system of Uruk in Mesopotamia (invented around 3300 BC), but this is not as obvious as he says: hieroglyphs could have been an indigenous invention. Moreover, the connection between the hieroglyphs and the simple pictograms found in Abydos is not clear: the pictograms do not all face to the right, like typical hieroglyphs.

But it would be churlish to suggest that Romer's project to shed light on an Egyptian era where historians fear to look is less than welcome. After a long wait, we have an up-to-date, stimulating account of the birth of what may turn out to be the world's oldest civilization. ■

Andrew Robinson is based in London and is the author of *Cracking the Egyptian Code: The Revolutionary Life of Jean-François Champollion* (*Thames and Hudson*, 2012).
e-mail: andrew.robinson33@virgin.net



Sergej Tschachotin, pictured in 1907, used his ultraviolet scalpel to study sea-urchin parthenogenesis.

FILM

A radical in the lab

Alison Abbott enjoys the story of a cell biologist whose incendiary life was shaped by revolution.

A distracting weakness for women and politics meant that, unlike his friends Albert Einstein and Ivan Pavlov, the Russian microbiologist Sergej Stepanowitsch Tschachotin (1883–1973) never achieved scientific immortality. But in his time he was a renowned cancer researcher and innovative cell biologist — and his extraordinary life makes a riveting film.

Married five times and a frequent political exile, Sergej Tschachotin lived a life that reflected the tumult of twentieth-century Europe. So German film-maker Boris Hars-Tschachotin, one of Sergej's roughly 27 great-grandchildren, had a family story ripe for documentary. Researching tales told by his grandfather Wenja Tschachotin, one of Sergej's eight sons, Boris made an unexpected discovery. Hidden in the Paris home of his great-uncle Eugen Tschachotin sat the urn containing Sergej's ashes, which had been collecting dust for 30 years. The film *Sergej in the Urn*, out this year in Germany, describes Boris's efforts to bring the family together to fulfil Sergej's last wish: to be buried in Corsica.

Irresolvable hostilities among Sergej's four remaining sons halted that plan. But the documentary is all the more absorbing for that. It reconstructs the scientist's life and times

from filial memories, archival footage of Nazi Germany and revolutionary Russia, and an unpublished autobiography that Eugen smuggled out of the Soviet Union with the urn, letters and other documents.

Sergej's dual life as idealist-activist and scientist began early. As a student in Moscow, he was deported in 1902 for participating in protests against the Tsarist regime. He moved to Germany, where he continued his studies in Munich, Berlin and finally Heidelberg.

His first academic post was in Messina, Italy, where he was caught in the 1908 earthquake that killed more than 70,000 people. Miraculously, he and his first wife and son were pulled from the rubble alive, although Sergej's leg was crushed. In his autobiography he claims that during the subsequent surgery he thought up the 'ultraviolet scalpel' — a beam of ultraviolet light that can make precise cuts through biological tissue — for which he became moderately famous.

Back in Heidelberg, he made a prototype. He used it to manipulate individual cells under the microscope, which helped him to contribute to debates on subjects such as the response of cancer cells to treatments. He also used the scalpel to prod unfertilized sea-urchin eggs into undergoing parthenogenesis.

On the strength of these successes, and to his enormous pride, Sergej was invited to join

Sergej in the Urn
DIRECTED BY BORIS
HARS-TSCHACHOTIN.
Liquid Blues
Production: 2009.
DVD release August
2012.

LIQUID BLUES PRODUCTION

"Sergej in the Urn shows a man whose family life was incompatible with science and revolution."

Pavlov's lab in St Petersburg in 1913. But unable to resist the siren call of politics, he began to educate soldiers in science and technology matters relevant to the war against Germany. Pavlov asked him to do this outside the lab, and Sergej drifted away from research.

For the next 15 years, politics dominated his life, and his fiery reputation lost him several academic jobs. He briefly joined the White Army, and fled Russia after the 1917 Bolshevik revolution. In 1922, Sergej became reconciled with the Soviet government, and found work at the Soviet embassy in Berlin, where he befriended Einstein. But a few years later, when Stalin rose to power, Sergej gave up on the Soviets and went back to science.

His next post was in Genoa, Italy. It was supported by a grant from the Vatican, which apparently thought that his work on parthenogenesis might provide insight into the conception of Jesus.

In 1930, Einstein recommended Sergej for a post at the Kaiser Wilhelm Institute for Medical Research in Heidelberg. But Sergej was thrown out of the institute in 1933 for co-founding an anti-Nazi movement called the Iron Front. He believed in fighting propaganda on its own emotive terms, and designed a strong logo to rival the swastika and a raised-fist salute to match the raised hand.

Exiled in Paris, he explicated his propaganda theory, which drew on Pavlov's theory of conditioned reflex, in his still-admired 1939 book *The Rape of the Masses*. In 1941, with the Nazis occupying the city, Sergej was interned for some months — but pressure from German scientists secured his release.

After the war, Sergej campaigned against the atomic bomb, founding the Science Liberation Movement in Paris in 1946. He returned to his homeland in 1958, after Stalin's death. Sergej was by then into his seventies, and his letters describe his disappointment with the revolution. He was forbidden to travel, and ended his days working at the Moscow Institute of Developmental Biology. (However, he managed to find enough energy to marry for a fifth time.)

Sergej in the Urn shows a man whose family life was incompatible with science and revolution. This is poignantly clear when Eugen plaintively asks, "He always wanted to save the world, but what becomes of us?" Towards the end of the film, Eugen's treatment of his great-nephew shows the psychological toll of Sergej's behaviour, but to say more would be a spoiler.

Sergej in the Urn won best German-language documentary at the Munich Documentary Film Festival in 2010, and went on general release in Germany on 23 February 2012. The DVD (in German, with English subtitles) will be available through www.sergej-in-der-urne.de from August. ■

Alison Abbott is *Nature's* Senior European correspondent.

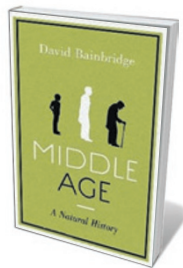
Books in brief



How It Began: A Time-Traveler's Guide to the Universe

Chris Impey NORTON 448 pp. \$27.95 (2012)

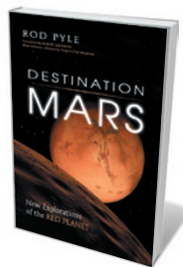
Astronomer Chris Impey takes us on a celestial road trip into deep space and time. His guided tour of the Universe starts with Earth's near neighbours — from the Moon to the star Proxima Centauri, the Orion nebula and the Milky Way — and journeys to the farthest edges of the cosmos and the first star. He pulls up at the ultimate grey area: the infant Universe, and the cosmological speculation about it. Each leg of the trip packs in science, history and anecdote, and is topped and tailed with imagined descriptions of each starry port of call.



Middle Age: A Natural History

David Bainbridge PORTOBELLO BOOKS 304 pp. £14.99 (2012)

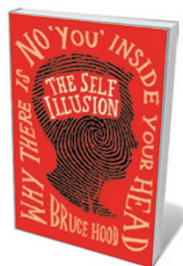
Turning 40 can be a time for celebration — or anguish. David Bainbridge, a veterinary surgeon with a penchant for evolutionary zoology, passed that watershed seething with curiosity about middle age. Sifting findings from anthropology, neuroscience, biology and psychology, he intelligently tackles tough issues such as whether there is a 'clock of death' — a genetically programmed march to oblivion. He concludes that middle age is a peak, not a slide: a distinctly human, built-in condition characterized by energy efficiency, mental stability, productivity and massive potential.



Destination Mars: New Explorations of the Red Planet

Rod Pyle PROMETHEUS 280 pp. \$19 (2012)

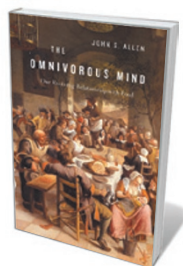
The seductive fascination of the red planet never palls, and science writer and documentary maker Rod Pyle stokes our hunger. For the Mars obsessed, the real thrills will be in his detailed descriptions of upcoming missions, the pseudo-Martian research conducted in Earth's most hostile environments, and interviews with explorers such as Steven Squyres, principal investigator of NASA's Mars Exploration Rover. Pyle's look at the planet and our perceptions and probings of it also covers Mars's geography, geology and hydrology, and its cultural history on Earth.



The Self Illusion: Why There is No 'You' Inside Your Head

Bruce Hood CONSTABLE 272 pp. £12.99 (2012)

Day to day, we experience a sense of self but, says Bruce Hood, it is a fabrication generated by our brains. Furthermore, that sense is symphonically distributed — created by a range of brain processes rather than centred in one site. Director of the Bristol Cognitive Development Centre, UK, Hood has amassed a mountain of support for his argument — covering brain development through social interaction such as attachment, the importance of social mimicry, the illogicality of free will, online and offline 'selves' and much, much more.



The Omnivorous Mind: Our Evolving Relationship with Food

John S. Allen HARVARD UNIVERSITY PRESS 328 pp. \$29.95 (2012)

Whether we're obsessing over intricate recipes or daydreaming about chocolate, our minds are often focused on food. Neuroanthropologist John Allen uses this mental gustation as a lens on our biological and cultural past, through anthropology, food history and the experience of chefs. The result is a banquet. Ranging over food cravings and aversions, cultural preferences and diets, he serves up plenty of *amuse-bouches*, not least an unusual take on the global love for the crispy and crunchy.