Alexey Wangenheim's letters home included drawings and riddles about science and nature.

HISTORY

Science lessons from the Gulag

Asif Siddiqi examines a biography of a Soviet meteorologist who taught his daughter from prison.

The title *Stalin's Meteorologist* hints that we might expect some grand overview of the experience of scientists under the abuses of Joseph Stalin's Soviet Union. But the story that prolific French commentator and writer Olivier Rolin presents is also personal. It uses the experience of one researcher as a lens on the arrest, incarceration and ultimate demise of a generation of Soviet intellectuals in the 1930s.

In this translation from the French (the original won the 2014 Prix du Style), Rolin recovers the story of meteorologist Alexey Feodosievich Wangenheim, who in 1929 became the first head of the Soviet Hydrometeorological Centre. Five years later, he was sent to a Gulag forced-labour camp. Shot through that harrowing narrative is the extraordinary story of how Wangenheim sent sketches and letters from prison to teach his daughter about science and nature. She grew up to become a palaeontologist.

Wangenheim — like many Soviet intellectuals educated before the Revolution — had to tread a tightrope as he made his way upwards in the new bureaucracy. As Rolin shows, this demanded both a commitment

Stalin's Meteorologist: One Man's Untold Story of Love, Life and Death

OLIVIER ROLIN
(TRANSL. ROS SCHWARTZ)
Harvill Secker: 2017.

tionalized violence of the state: in a move all too common at the time, Wangenheim was accused of counter-revolutionary activities by colleagues.

Many hundreds of thousands of Soviet citizens suffered similar fates in the

An Arctic fox drawn by Wangenheim.

to the socialist cause and restraint in activities such as attendance at international conferences, which were necessary for professional advancement but suspect in the eyes of the regime. Wangenheim's arrest in 1934 was not the result of a central edict, although Stalin approved much of the paperwork. It stemmed from heightened professional jealousies, poisoned by paranoia and fuelled by the insti-

1930s. During the Great Terror of 1936–38 alone, some 1.5 million people were arrested and about 700,000 shot in a paroxysm of state-directed violence. In the journey to Wangenheim's own end, the letters he sent from prison to his daughter Eleonora — just short of four years old at the time of his arrest — offer a counterpoint of hope. It was these that inspired the book.

Rolin came upon Eleonora's compilation of the letters in 2012, while visiting Russia. There are dozens of beautiful still-life sketches made by the meteorologist in prison — of clouds, aurorae, animals, fruit, aeroplanes, boats, leaves, trees. The colour drawings, some reproduced in the book, were partly a chronicle of life in the Gulag, but also a pedagogical tool. As Rolin notes, Wangenheim "was using plants to teach his daughter the basics of arithmetic and geometry" through riddles outlined in accompanying text. In one, the "lobes of a leaf represented the elementary numbers, its shape symmetry and asymmetry, while a pine cone illustrated the spiral".

The Solovki prison camp, in which Wangenheim crafted these lessons, was housed in a former Russian Orthodox monastery on the Solovetsky Islands in the White Sea. Although his time there was unimaginably harsh — with forced labour, poor food and grossly inadequate health care — the prison was unusual in having a well-stocked library and access to a radio, art supplies and stationery. Wangenheim was also permitted to give scientific lectures to fellow prisoners. His irregular letters to Eleonora and his wife Varvara describe his longing for home, yet display unwavering devotion to the Stalinist cause. Rolin attributes this to self-censorship: the letters were probably read by the authorities. But such allegiance was not uncommon, even among those most brutalized by the system, stemming from a belief that it was not the exalted Stalin but his minions who had corrupted the purity of the socialist cause.

By his own admission, Rolin's tone is lyrical and impressionistic rather than scholarly. He intersperses his own thoughts on Russian history, geography and culture, at times threatening to overwhelm the biography. (He frequently reflects, for instance, on his attraction to Russia: "so much time stolen from more pleasant destinations.") He uses Wangenheim's letters to Eleonora to reconstruct life at Solovki, but it is not always clear whether he is directly quoting them or imaginatively reconstructing the meteorologist's thoughts.

Fact, fiction and speculation commingle as tenses constantly change.

Yet although a historian might approach the book with some scepticism, the overall effect

is moving — not least, in the chilling passages on the 1937 deportation from Solovki of more than 1,100 prisoners, including Wangenheim, for execution. Rolin's reconstruction of the meteorologist's last hours is masterful, integrating the lives of the executioners, the eerie geography of the mass extermination site in Karelia on the mainland, and the recovered memory of this horrific event — a ghost echo for six decades, until given form when the mass grave was discovered in the mid-1990s.

Wangenheim's story is known to us largely through the diligence of researchers at the Memorial in St Petersburg, a Russian civil-rights society dedicated to chronicling the abuses of Stalinism. Rolin rightfully mentions three of its researchers — Irina Flighe, Yury Dmitriev and the late Veniamin Iofe — who uncovered the tragic, often lurid details of Wangenheim's life and death. Because Rolin's book lacks references or footnotes, it is hard to evaluate the broader historical research that grounds this slim volume. It should be pointed out that much of Wangenheim's story has been published in a Russian book (*Alexei Feodosevich Wangenheim: Restoring a Name*; Tablitsy

MEMORIAL/EDITIONS PAULSEN

"A house a few centimetres in size/Sisters live in it/Guess what they're called," Wangenheim wrote.

Mendelev, 2005) that also reproduced all of Wangenheim's drawings and letters.

The contribution of Rolin, with his English translator Ros Schwartz, is to bring this story to the non-Russian-speaking world and situate it as part of a broader meditation on the history of the Soviet tragedy. In that he has succeeded, producing an eloquent addition to a violent episode in the history of science in the twentieth century. ■

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Books in brief

Ripples in Spacetime

Govert Schilling BELKNAP (2017)

In September 2015, a new frontier in astronomy beckoned with the first direct detection of gravitational waves, confirming Albert Einstein's prediction almost a century before. Govert Schilling's deliciously nerdy grand tour takes us through compelling backstory, current research and future expectations. Starting from Einstein's path to general relativity, Schilling examines the contributions of Joseph Weber and Jocelyn Bell Burnell, the long and onerous saga of the Laser Interferometer Gravitational-Wave Observatory, and the coming array of super-instruments inviting us to "surf the waves of spacetime".

Caesar's Last Breath: Decoding the Secrets of the Air Around Us

Sam Kean LITTLE, BROWN (2017)

Take a deep breath: among the sextillions of molecules you inhale may lurk traces of First World War mustard gas or Julius Caesar's dying gasp. As science writer Sam Kean reminds us in this beguiling book, gases — far from being airy nothings — have had a pervasive, formative role in natural and human history. Hinging each chapter on specific molecules, Kean illuminates the science in everything from Earth's vaporous origins to the function of hydrogen in early aeronautic balloons and the ammonia and butane that Albert Einstein and Leo Szilard harnessed in the 1930s for a novel refrigerator.

One Hot Summer

Rosemary Ashton YALE UNIVERSITY PRESS (2017)

The torrid London summer of 1858 is remembered primarily for the 'Great Stink' — the heat-fuelled reek of a sewage-strewn River Thames. Yet as Rosemary Ashton notes in this microhistory, the season also saw explosive advances in science and society. Benjamin Disraeli, then chancellor of the exchequer, pushed through the Thames Purification Bill that ushered in Joseph Bazalgette's superbly engineered sewerage system. And Charles Darwin, beset by family crises, received a famous letter from field biologist Alfred Russel Wallace that jolted him into finalizing his theory of natural selection.

RISINGTIDEFALLINGSTAR

Philip Hoare FOURTH ESTATE (2017)

Like the sea's ebb and flow, this meditation on the marine washes back and forth between natural and cultural history, travelogue and memoir. Philip Hoare, who has long explored this region in books such as *The Sea Inside* (Fourth Estate, 2013; see C. Roberts *Nature* **498**, 33; 2013), tacks from fin-whale feeding frenzies to the brutal toll of First World War whaling. He hangs upside down in the ocean to hear cetacean 'song', reflects on sea-haunted luminaries from writer Herman Melville to aesthete Stephen Tennant, and swims day and night — at one point, among jellyfish like "elaborate Victorian puddings".

Ancient Brews: Rediscovered and Re-created

Patrick E. McGovern W. W. NORTON (2017)

Palaeolithic cocktail, anyone? Biochemical archaeologist Patrick McGovern, who researches ancient fermented residues, relates tales from the field and even recreates the buzz-inducing beverages. His finds include the world's oldest chemically confirmed alcoholic drink — a Neolithic Chinese concoction of chewed rice, mould and hawthorn berries — as well as grogs Etruscan to Nordic that involve everything from pomegranates to birch sap. Fourier transform infrared spectroscopy has rarely been put to headier use. [Barbara Kiser](#)