A better rye

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THE MURDER OF NIkolai VAVILOV

The story of Stalin's persecution of one of the twentieth century's greatest scientists

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In 1934, the geneticist Nikolai Vavilov published an essay, "What World Flora Can Impart to the Soviet Subtropics", in a special issue of the illustrated mass magazine Ogoniok. Vavilov noted that much of the verdant plant life of California and Florida had been imported by human hands, and that he had personally discovered the same throughout the African Mediterranean in the 1920s. He went on to list a fantastic assortment of citrus varieties that, once gathered from around the globe by teams of Soviet researchers, could flourish in the Soviet Union. "We are convinced that in just a few years the Soviet subtropics will be unrecognizable", Vavilov concluded, promising a Soviet Florida or California. Such hopes of abundance remained unfulfilled. After his arrest on fabricated charges in 1940, Vavilov died of malnutrition in Stalin's Gulag. He had accumulated more seeds abroad ("We cleaned out all of Afghanistan", he boasted to a friend) than could be studied or exploited in a reasonable period of time, and Stalinist time frames were far from reasonable. Today, the erstwhile Soviet subtropics lie partly in breakaway Abkhazia, disputed between Georgia and Russia.

Peter Pringle, a former correspondent in Moscow, has rendered Vavilov's life in a crisp, poignant narrative. Although Vavilov's (1889-1943) was probably not "one of the twentieth century's greatest scientists", as Pringle asserts, he was one of the two internationally best known scientists of the pre-war Soviet Union, the other being Ivan Pavlov (1849-1936). Pavlov, winner of the Nobel Prize in Physiology or Medicine in 1904, died a natural death in his eighty-seventh year. Vavilov, instead, tangled with Stalin and Trofim Lysenko.

Vavilov and Lysenko shared the aim of revolutionizing Soviet agriculture by enhancing plants, but they clashed over method. Vavilov practised pith-helmet science, seeking out wild varieties of wheat, rye and many other crops, to which he applied Gregor Mendel's rediscovered theory of genes for crop breeding. Vavilov's book Origins and Geography of Cultivated Plants (1926), based on travels and research in many countries over many years, won the Lenin Prize. He hugged ingots of platinum to pay for his acquisitions and, among other coups, scored samples of heavily guarded quinine from Peru, not for personal gain, but for the motherland. The son of a former millionnaire textile salesman and the grandson of a peasant, he was a loyal child of Soviet power.

Lysenko, eleven years younger than Vavilov and lacking the latter's formal scientific training, nonetheless developed expertise in plant physiology and soil science, while trumpeting his ignorance of genetics. En route to becoming absolute dictator of Soviet biology by the 1940s, the resentment-driven Lysenko annihilated not just Vavilov but Soviet genetics. For a long time, Vavilov had tried to treat him like a proletarian protégé, despite colleagues' admonitions and his own doubts. Vavilov comes across as the calf who, finally, learns where veal comes from.

The Lamarckian calumny of Lysenkoism is well plumbed, and on Vavilov there's a splendid book in English, The Vavilov Affair (1984), by the émigré Mark Popovsky, the first to access Vavilov's secret police dossier and to track down scientists, police and prison inmates who knew him. Pringle, who relies on Popovsky, conveys more fully Vavilov's extraordinary family and upbringing, personal life and loves, and international links with the likes of William Bateson (who coined the term genetics) and Thomas Hunt Morgan (of fruit fly research).

What Pringle does not do, and what no one has ever done with complete success, is confront the ostensible paradox of how Soviet scientific achievements were possible, on such a broad scale, given the absence of free exchange, the restricted connections to the international scientific community, and the often politicized peer review. The Soviet Union combined huge budgets for science with persecution of scientists, and genuine breakthroughs with inveterate fraud. Despite bureaucratism far worse than in other countries of scientific advance, there was a lot of creative, world-class science under dictatorship. Was it all in spite of Soviet institutions and norms? Popovsky - whose father wrote a hagiography of Lysenko decades before the son took up the cause of Vavilov - also published a lasting, if overstated, general exposé, Science in Chains (1980), but that only served to make Soviet scientific successes seem that much more inexplicable. Around the same time, Miklós Haraszti, the Hungarian dissident, wrote The Velvet Prison, a bleak, brilliant work showing how artistic production and unfreedom were utterly compatible.

Vavilov oversaw the Soviet Union's most important agricultural institutes during collectivization. His brother, Sergei Vavilov, became president of Stalin's Academy of Sciences just two years after Nikolai wasted to death. A socialist and a patriot, Nikolai Vavilov would compromise his political integrity for the sake of science, but he would never compromise science, even to save his life. His immensely valuable plant collection lives on, having survived even the siege of Leningrad, where starving geneticists trained by Vavilov refused to eat the seeds and fruits.