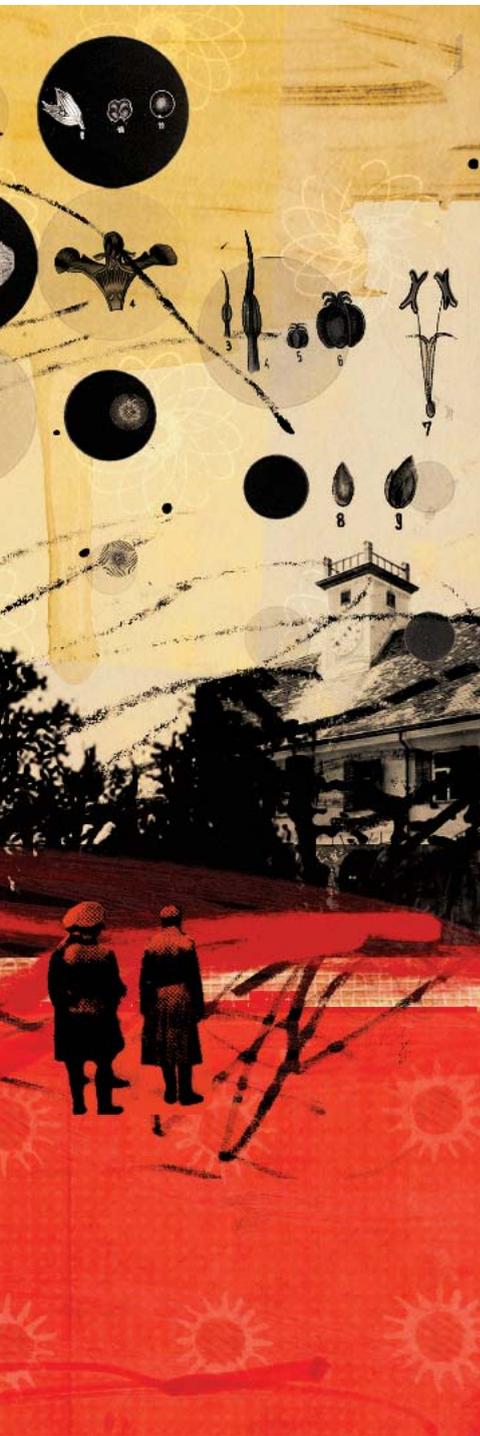




# The great seed



## In a massive act of biopiracy during the second world war, Nazi botanists stole large parts of the Soviet Union's seed collection. **Fred Pearce** goes in search of their ultimate destination

A SHOT rang out across the foothills of the Andes. Heinz Brücher, 75, Adolf Hitler's top botanist, lay dead in his vineyard on the outskirts of Mendoza in Argentina. It was December 1991. Nobody was ever charged with the murder, but plenty of organisations had a motive, including drug cartels, the KGB and Mossad. In an eventful life full of unanswered questions, Brücher had made many enemies.

Half a century before, Brücher was a pushy young geneticist at the University of Jena, Germany, a hotbed of Nazi ideology. During the second world war he became one of Hitler's biopirates – scientists who rushed into the Soviet Union behind the advancing German troops, occupying agricultural research stations and commandeering their plants and seeds. These were part of the Soviet Union's collection of plant genetic material, at that time the largest in the world. The fate of this plunder after the war is shrouded in mystery. Following a trail that leads from Germany to Sweden, the UK, South America and even back to Russia, *New Scientist* has gone in search of Brücher's loot.

The story begins in the Soviet Union with the legendary scientist Nikolai Vavilov, whose life's work was collecting wild and cultivated seeds from across the world. His intention was to breed original varieties of crops with attributes that would allow them to grow anywhere in the expanding Soviet empire. Vavilov's seeds would literally be the seeds of a new imperial expansion.

Under Lenin's patronage, in 1924 Vavilov took charge of his own institute, the All-Union Institute of Applied Botany and New Crops in Leningrad (now St Petersburg). It soon became renowned internationally for housing the largest collection of crop seeds

anywhere in the world. By the early 1930s, it had 250,000 samples. Vavilov also assembled back-up collections in research stations across the Soviet Union.

After Lenin's death, however, Vavilov fell out of favour, usurped by a former pupil whose ideas appealed more to the new leader, Joseph Stalin. Trofim Lysenko argued that plant genetics, and with it Vavilov's collection, was unnecessary, as plants simply acquired new characteristics according to their environment. This struck an ideological chord with Stalin. He liked the idea that plants could be transformed in the same way he believed the workers should be – by an act of political will.

In 1940 Vavilov was imprisoned for defending the "bourgeois pseudoscience" of genetics. He died in prison in 1943, his collections all but forgotten. When Hitler invaded Russia in 1941, Stalin moved key infrastructure such as power stations and steel mills east of the Urals. Yet he left some of the most valuable economic treasures behind – Vavilov's seeds.

If Stalin could not see their value, the Germans could. Nazi Germany was obsessed with self-sufficiency and regarded Vavilov's collection as highly desirable war loot. Before the invasion, scientists from the Kaiser Wilhelm Institutes (forerunners of today's Max Planck Institutes) drew up plans to take over Russian research institutes, and as troops advanced across the Soviet Union, botanists were not far behind. They never got their hands on Vavilov's main collection, which stayed secure behind the walls of his institute throughout the siege of Leningrad, but by early 1943 German scientists had taken control of around 200 field stations across Russia and Ukraine.

Afterwards, many German scientists claimed they were merely protecting the seed heritage of humankind. Yet records uncovered by German historians show that there was, in fact, a scramble to grab the spoils. One of the most zealous participants was the Ahnenerbe, the Ancestral Heritage Research and Teaching Society, set up in 1935 by SS commander Heinrich Himmler to provide evidence of Aryan racial superiority.

Enter Brücher. In 1943 he was 27 years old and already an SS second lieutenant and a prominent member of the Ahnenerbe. ▶

# blitzkrieg

(From left to right) Soviet geneticist Nikolai Vavilov; Lannach Castle in Austria; William Denton-Venables



After the German defeat at Stalingrad (now Volgograd) in early 1943 it was clear that the Nazis would lose most of their territorial gains in the Soviet Union – and with them the field stations and their seeds. Brücher suggested that the Ahnenerbe should send out a “collecting commando” to bring back the loot and build a new institute to house it. Himmler agreed – and put Brücher in charge.

In June 1943, Brücher began a botanical blitzkrieg. He and his henchmen raided at least 18 institutes across Ukraine and Crimea. (see Map, opposite). All of the commando are now dead except their translator, Arnold Steinbrecher. He is 93 and lives in Canada, where *New Scientist* tracked him down with the help of science historian Uwe Hossfeld from the University of Jena.

Steinbrecher remembers Brücher as “meticulous and highly intelligent, but very ambitious, demanding, forceful and autocratic”, but remains loyal to a man who, he says, saved his life. He insists that the

Other prisoners proved more useful. One in particular, a British trooper named William Denton-Venables, was a trained botanist. Brücher later described him as “my British collaborator during the years of 1943 to 1945”. It is not clear exactly how Denton-Venables helped Brücher with his plans for botanical world domination, although Steinbrecher remembers that the two had a good rapport and worked together almost as colleagues.

The breeding programme never got off the ground. Within months, the Red Army was advancing rapidly. In February 1945, the SS ordered Brücher to blow up the castle. Perhaps seeing the seeds as his passport to a post-war

not have the right to free movement in Allied-occupied Germany or Austria, but it seems he somehow made his way back to Lannach, which was then in British hands. Soon afterwards, he chartered a fishing boat from Germany to Stockholm in Sweden.

Why Sweden? Brücher knew scientists there who had been Nazi sympathisers during the war. They included the explorer and plant collector Sven Hedin, then 82, who had given the opening address at the 1936 Berlin Olympics. Brücher worked briefly with Hedin, but in November 1948 he set sail for Argentina with nearly half a tonne of baggage. There he began a new career as a plant geneticist at the National University of Tucumán, which employed a large number of exiled German and Italian scientists.

His new circumstances had little effect on his political opinions. “When I knew him [in the 1970s] his repertoire of value judgements mirrored those in force or in vogue during the Nazi period,” says Daniel Gade, a scientific acquaintance from the University of Vermont. Brücher also spent a year in South Africa during the apartheid era, where he professed to see evidence supporting his theories on the superiority of white races.

Brücher was also an outspoken opponent of all drugs, including tobacco and alcohol. According to Gade, he boasted a few years before his death that he was working on a virus that could destroy the coca plant. True or not, this is a plausible motive for his murder.

Brücher is, however, only one part of the story of the stolen seeds. A Soviet state commission set up after the war concluded that, in all, 40,000 plant samples had been lost during the war, having either been destroyed or stolen.

Where did they all go? According to Olga Elina of the Institute for the History of Science and Technology in Moscow, German documents show that, Lannach aside, the seeds mostly went to the plant-breeding

## “At the critical moment, William warned us that the Red Army was expected in one hour”

commando was not a military operation. Brücher “introduced himself as a botanist and not as a military officer. There was never any attempt to gain access by force.”

Brücher brought the seeds back to the new SS Institute of Plant Genetics at Lannach, a remote castle in Austria, where they were amalgamated with an Ahnenerbe collection from an expedition to Tibet five years earlier. “The intention was to grow seedlings from both the Ukraine and Tibet stock and to cross-breed them with European strains... to develop hybrids that would grow at higher elevations and in colder climates,” recalls Steinbrecher. Brücher, he says, “had grandiose plans, such as to grow plants in the Arctic”.

Lannach was staffed by prisoners, including Allied prisoners of war and 15 women Jehovah’s Witnesses from a nearby concentration camp. The institute seems to fit many stereotypes of SS operations: sinister and brutal, but also farcical. According to Steinbrecher, the Jehovah’s Witness gardeners refused to kill weeds because this was against their religion.

career, Brücher ignored the command.

Denton-Venables seems to have had divided loyalties, too. Indeed, the two men’s loyalties seem to have been mostly to each other. Steinbrecher says that the Lannach PoWs had a short-wave radio and often knew more than their captors about events on the outside. “From time to time, William shared information about military operations with Heinz. At the critical moment, he informed him that the Red Army was expected in one hour.” Brücher and Steinbrecher fled, eventually finding sanctuary with Brücher’s parents near Heidelberg.

Hossfeld says it is not entirely clear what Brücher did for the next two years. He apparently wrote some reports on edible seed oils for US occupiers, who were talent-scouting for useful scientists. Botanists were low priority compared with rocket scientists and nuclear engineers, however, so if Brücher had hoped for an invitation to the US he was disappointed.

In 1947, he apparently decided it was time to leave Germany. As a former SS officer he did

centres of the Kaiser Wilhelm Institutes in Vienna and Münchenberg.

Did they stay there after the war? Hossfeld says he has been unable to find any post-war records of the stolen collections or their use in plant breeding in Germany. Henry Shands, director of the main US national seed bank in Fort Collins, Colorado, also reached a dead end searching archives in Washington DC. Elina says that this probably means that the seeds were simply absorbed into Germany's own collections.

The Lannach seeds, however, might have had a more colourful post-war existence. The castle was abandoned at the end of the war, and Steinbrecher insists that he and Brücher fled at short notice, without any seeds. Yet Hossfeld has uncovered a letter Brücher sent to a German colleague, Theodor Herzog, in November 1947, in which he claimed to have recently "re-collected" the Lannach seeds, most of which were not at the castle, he said, but had been secretly planted out in villages.

Hossfeld believes that Brücher took these seeds with him to Sweden. So does Carl-Gustaf Thornstrom of the Swedish University of Agricultural Science in Uppsala. Thornstrom interviewed five Swedish geneticists who met Brücher during his time in the country. All, he said, became "stiff" when the question of the Lannach seeds was raised.

Arne Hagberg, head of the Swedish Seed Association in the 1970s, told *New Scientist* he met Brücher in Sweden before he left for Argentina. He said that Brücher had with him material from Lannach, and he believes Brücher used this as the basis for a new gene bank he assembled in Argentina. "It was probably quite simple for him to bring some paper bags with the desired seeds in his luggage to Argentina. That would certainly not have been the main problem for him."

## Back in the USSR?

There is also intriguing evidence that Brücher returned some of the material to the Soviet Union. Thornstrom visited Vavilov's old institute, now called the N. I. Vavilov Research Institute of Plant Industry, in 2001 and was shown notebooks detailing deliveries by Brücher to the institute in 1960 and later. He speculates that Brücher was pressured into handing back the material and points out that the then director of the institute, Pjotr Zhukowski, visited Tucumán in 1958.

There may also be a British connection. In his letter to Herzog, Brücher made it clear that he was still in touch with Denton-Venables. He wrote that his erstwhile "collaborator" had begun a career as director of a company called Taylor and Venables Ltd Agricultural Seed Merchants. The Englishman, he added,

showed "excellent correctness and loyal assistance during the re-collection of the seed material". What could he mean?

*New Scientist* has reconstructed some of Denton-Venables's movements after the war and spoken to surviving members of his family. In 1945, he was awarded the Military Medal. The citation includes an account of events at Lannach, describing how Denton-Venables stayed behind as the Russians invaded in order to prevent the Germans from destroying "valuable agricultural material". The citation concludes: "Denton-Venables brought back with him samples of wheat seeds, which agricultural experts believe may prove of inestimable value."

From this version of events it seems that Denton-Venables may have outwitted his chum, hustling him out of the back door while he filled his boots with seeds and slipped out of the front. His daughter says that after he was demobilised he was called to a mysterious meeting in London to discuss some seeds, but after that the trail goes cold.

We contacted the Royal Botanic Gardens at Kew, Rothamsted agricultural research centre in Hertfordshire and the Plant Breeding Institute in Norwich, which would have been the most likely repositories for such seeds and the information about them. Their archivists all drew a blank. Nobody could say what might have happened to the seeds, or even who the "experts" might have been who regarded them as being of potentially "inestimable value".

Perhaps Denton-Venables used the seeds to set up his company. His family say he came back from the war with no money but soon built up a successful business in Chester. Yet if he was living off ill-gotten gains he soon got his comeuppance. By the late 1950s his company was on the rocks and in May 1959, plain old William Venables (the Denton turns out to have been a piece of personal aggrandisement) died of a stroke, aged 44.

It is even possible that Venables and Brücher met one more time after leaving Lannach. Venables's family are sure that shortly after the war he made a secret journey to visit his old captor and friend. Venables apparently got himself a passport at around this time.

Perhaps Venables joined Brücher on his trip to Lannach to re-collect the seeds. That would account for Brücher's description of his friend's "excellent correctness and loyal assistance". Or maybe Venables simply handed over seeds he had kept since their escape. Nobody knows how or why they arranged to meet, exactly when or where they met, or what transpired. It is an intriguing final mystery, but the answer seems to have gone with them to their graves. ●

## NAZI BIOPIRATES

In the summer of 1943, the SS raided 18 sites in Ukraine where valuable seed was stored and returned the spoils to Lannach Castle in Austria

